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(71)Applicant : KATO SHUNJI

(72)Inventor : KATO SHUNJI

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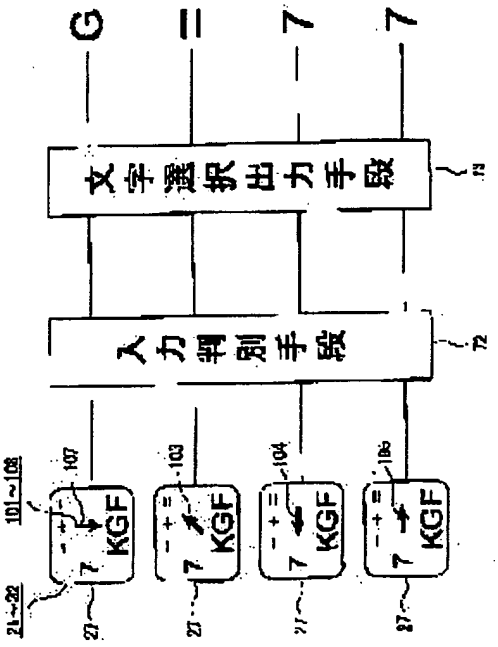
(54) TOUCH-TYPE KEY INPUT APPARATUS

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a ~~tough~~ Touch-type key input apparatus with high input operationability as securing portability.

SOLUTION: The touch-type key input apparatus is provided with a plurality of character keys 21 to 32 each having at least two characters on its surface, an input discrimination means 72 for detecting that a character key is touched and capable of discriminating the movement direction in bar touch input to be inputted by moving longer than prescribed length as being touched from a point touched first in an area of the character key, a character selection/ output means 73 for selecting and outputting a character displayed at the movement direction side with respect to a character key reference position in accordance with the movement direction discriminated by the input discrimination means. Since a character at a position corresponding to a bar touch input operation of the characters displayed on the surfaces of the respective character keys 21 to 32 is selected and



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outputted, an input operation is intuitively and easily grasped and the input operationability is enhanced.

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CLAIMS

[Claim(s)]
[Claim 1] Two or more letter keys as which at least two alphabetic characters were displayed on the front face of one key, The input distinction means which can distinguish the migration direction in the bar touch input which moves more than predetermined die length and is inputted, touched from the point which said letter key detected having been touched and touched first in the field of said letter key, Touch type key input equipment characterized by having an alphabetic character selection output means to choose and output the alphabetic character displayed on said migration direction side to the criteria location of said letter key, according to said migration direction distinguished by this input distinction means.
[Claim 2] In touch type key input equipment according to claim 1 said input distinction means The migration direction at the time of said bar touch input can be distinguished in the eight directions, the direction of the lower left, down, the direction of the lower right, the direction of the upper left, above, the direction of the upper right, the left, and the right. Said alphabetic character selection output means Touch type key input equipment characterized by choosing and outputting the alphabetic character when the alphabetic character is displayed in the migration direction of the bar touch input distinguished with said input distinction means from the criteria location in the front face of each letter key.
[Claim 3] Said letter key is touch type key input equipment characterized by establishing 4 steps of vertical right-and-left 3 train or 12 3 steps of vertical right-and-left 4 trains at least in touch type key input equipment according to claim 1 or 2.
[Claim 4] it be touch type key input equipment characterize by for the criteria location of said letter key to be the flat surface center position of a letter key , and for said alphabetic character selection output means to choose and output the alphabetic character displayed in the migration direction of the bar touch input distinguished with said input distinction means from the center position in the front face of each letter key in touch type key input equipment given in either of claims 1-3 .
[Claim 5] In touch type key input equipment given in either of claims 1-4 to said letter key At least two kinds of alphabetic characters are displayed among a figure, the alphabet, and three kinds of alphabetic characters of a notation, respectively. Said alphabetic character selection output means Touch type key input equipment characterized by choosing and outputting the alphabetic character displayed on said migration direction side to the criteria location of said letter key according to said migration direction distinguished by said input distinction means.
[Claim 6] In touch type key input equipment given in either of claims 1-4 to said letter key At least two kinds of alphabetic characters are displayed, respectively among a figure, the alphabet, a kana alphabetic character, and four kinds of alphabetic characters of a notation. Said alphabetic character selection output means Touch type key input equipment characterized by choosing and outputting the alphabetic character displayed on said migration direction side to the criteria location of said letter key according to said migration direction distinguished by said input distinction means.
[Claim 7] In touch type key input equipment given in either of claims 1-6 The lower left side of the keytop of said letter key, even if there are few bottom and lower right sides, the alphabet is displayed on

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either. The upper left side of the keytop of said letter key, even if there are few top and upper right sides, a notation is displayed on either. A figure is displayed on either [at least] the right-hand side of the keytop of said letter key, or left-hand side. Said input distinction means The migration direction at the time of said bar touch input can be distinguished in the eight directions, the direction of the lower left, down, the direction of the lower right, the direction of the upper left, above, the direction of the upper right, the left, and the right. Said alphabetic character selection output means Touch type key input equipment characterized by choosing and outputting the alphabetic character displayed on the direction side distinguished by said input distinction means to the center position of said letter key.

[Claim 8] In touch type key input equipment according to claim 1 The lower left side of the keytop of said letter key, Even if there are few bottom and lower right sides, the alphabet is displayed on either. The upper left side of the keytop of said letter key, Even if there are few top and upper right sides, a notation is displayed on either, and a figure is displayed on either [at least] the right-hand side of the keytop of said letter key, or left-hand side. Said input distinction means The migration direction at the time of said bar touch input can be distinguished in at least three directions, above, down, and the left. Said alphabetic character selection output means In the direction in which one [at least] figure of said right and the left was displayed, when [said] a bar touch input is carried out Said figure is chosen and outputted. To above [said] when [said] a bar touch input is carried out According to the count of the bar touch input, the upper left side, the alphabetic character displayed on said letter key is chosen in order by the side of a top and the upper right, and is outputted. To down [said] when [said] a bar touch input is carried out Touch type key input equipment characterized by choosing the alphabetic character displayed on said letter key in order by the side of the bottom and the lower right, and outputting it the lower left side according to the count of the bar touch input.

[Claim 9] In touch type key input equipment according to claim 1 to 8, said at least 12 letter keys are prepared. To five of said 12 letter keys Touch type key input equipment characterized by displaying the alphabetic character of "A", "I", "U", "E", and "O" which are the alphabet showing a vowel on each letter key according to an individual, and other 21 characters of the alphabet being shown three characters at a time to other seven letter keys by each letter key.

[Claim 10] It is touch type key input equipment which said at least nine letter keys are prepared in touch type key input equipment according to claim 1 to 8, and is characterized by displaying each alphabet of "QWE", "RTY", "UIOP", "ASD", "FGH", "JKL", "ZXC", "VBN", and "M" on said nine letter keys, respectively.

[Claim 11] It is touch type key input equipment which said at least nine letter keys are prepared in touch type key input equipment according to claim 1 to 8, and is characterized by displaying each alphabet of "ABC", "DEF", "GHI", "JKL", "MNO", "PQRS", "TUV", and "WXYZ" on said nine letter keys, respectively.

[Claim 12] It is touch type key input equipment characterized by for said alphabetic character selection output means choosing the alphabetic character beforehand set up corresponding to the direction when said bar touch input is performed in the direction in which said alphabetic character is not displayed in the keytop of said letter key in touch type key input equipment according to claim 1 to 11, and outputting.

[Claim 13] In touch type key input equipment according to claim 1 to 12 said input distinction means It moves more than predetermined die length, touched from the point first touched in the field of said letter key. It is constituted possible [distinction of the both-way bar touch alter operation made / hard flow / to carry out predetermined die-length migration toward the original location furthermore, and its direction]. An alphabetic character selection output means Touch type key input equipment characterized by choosing and outputting the alphabetic character beforehand set up according to a both-way bar touch input and its direction when a both-way bar touch input is performed.

[Claim 14] In touch type key input equipment according to claim 1 to 13 said input distinction means The right-turn bar touch alter operation which moves more than predetermined die length, touched from the point first touched in the field of said letter key, breaks rightward to the migration direction further, and carries out predetermined die-length migration migration, It is constituted possible [distinction of

the migration direction until it turns to the right or turns left from the point which broke leftward and touched the beginning in the left-turn bar touch alter operation which carries out predetermined die-length migration, and said right-turn and left-turn bar touch alter operation]. It is touch type key input equipment characterized by an alphabetic character selection output means choosing and outputting the alphabetic character beforehand set up according to the migration direction when right-turn or a left-turn bar touch input is performed, until it turns to the right or turns left from the point which touched right-turn or a left-turn bar touch input, and the beginning.

[Claim 15] In touch type key input equipment according to claim 1 to 14 to said letter key The direct-input mode which inputs the alphabet which the alphabetic character of the "**" stage showing each line in 50 sound array of the alphabet and a kana alphabetic character was displayed, and was displayed on the letter key at least, It has an input mode change means by which the kana input mode which inputs the kana alphabetic character in which only the alphabetic character of a "**" stage was displayed can be changed. Said alphabetic character selection output means When set as direct-input mode by the input mode change means According to said migration direction distinguished by the input distinction means, the alphabet displayed on said migration direction side to the criteria location of said letter key is chosen and outputted. Touch type key input equipment characterized by choosing and outputting the kana alphabetic character virtually set to said migration direction side to the criteria location of said letter key when set as kana input mode.

[Claim 16] It has an input area setting means to set it as the input area which summarized said two or more keys virtually in touch type key input equipment according to claim 1 to 15. Said input distinction means When the input area which consists of two or more keys with said input area setting means is set up virtually It is constituted possible [distinction of the migration direction of the bar touch input performed in the input area]. Said alphabetic character selection output means According to said migration direction distinguished by the input distinction means, the alphabetic character set to the 1st of the letter key arranged to the criteria location of said input area at said migration direction side is chosen and outputted. And touch type key input equipment characterized by choosing and outputting the alphabetic character corresponding to the alter operation in the letter key chosen in said bar touch input when predetermined alter operation is performed in input area following said bar touch input.

[Claim 17] It has an input area setting means to set it as the input area which summarized said two or more keys virtually in touch type key input equipment according to claim 1 to 15. Said input distinction means When the input area which consists of two or more keys with said input area setting means is set up virtually The migration direction of the 1st and 2nd bar touch inputs continuously performed in the input area is constituted respectively possible [distinction]. Said alphabetic character selection output means It responds in the migration direction of the 1st bar touch input distinguished by the input distinction means. Touch type key input equipment characterized by choosing and outputting the alphabetic character corresponding to the migration direction of said 2nd bar touch input in the letter key as which the letter key arranged to the criteria location of said input area at said migration direction side was chosen as, and the parenthesis was chosen.

[Claim 18] In touch type key input equipment according to claim 1 to 17 said letter key It is displayed on a keyboard sheet. This keyboard sheet It is stuck on the touch input detection area which can detect the touch by the touch type input means. Said input distinction means Touch type key input equipment characterized by being constituted recognizing the field of each letter key on said stuck keyboard sheet, and possible [distinction of the migration direction at the time of said bar touch input in the field corresponding to each of these letter keys].

[Claim 19] it be touch type key input equipment characterize by be constitute possible [while said letter key be display on a screen in touch type key input equipment according to claim 1 to 17 , said input distinction means recognize the field of said letter key display on a screen , and / distinction of the migration direction at the time of said bar touch input in the field corresponding to each of these letter keys] .

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] About touch type key input equipment, in detail, this invention touches keys, such as a cellular phone, and a Personal Digital Assistant (PDA), a small personal computer (personal computer), directly by the pen, a fingertip, etc., and relates to the touch type key input equipment which inputs the alphabetic character displayed on a key.
[0002]
[Background of the Invention] In recent years, the pen input which gives up on "a key input" which becomes the hindrance of a miniaturization, and inputs by touching a liquid crystal screen using a "pen" in the portable personal computer (mobile personal computer) miniaturized at B5 which is spreading quickly, or below B6 size, or a Personal Digital Assistant (PDA) is in use.
[0003] There are usually two kinds of input approaches in this pen input. That is, they are the "handwriting input" which writes a direct alphabetic character in a screen etc., and the "softkey input" which displays a small virtual keyboard on a screen, and touches and inputs the key into it with a pen. There is no need of using a physical keyboard, it can miniaturize, without being bulky, and all are convenient to carry.
[0004]
[Problem(s) to be Solved by the Invention] However, there were the following troubles by these conventional pen input approaches. That is, in a "handwriting input", although facilities also had keyboard entry at the point which can be used also for a person weak, in order that the input and character recognition of an alphabetic character might take time amount, there was a problem of not being suitable in the input and the long duration input of a long text which require speed.
[0005] Moreover, by the virtual keyboard of a "softkey input", since it had set one alphabetic character at a time as each key, there was a problem of a softkey having become small too much and being hard to touch it. For example, when it was the alphabet of 26 characters, 26 keys were displayed, when it was the kana of 50 characters, 50 keys had to be displayed, and there was a problem that a softkey became small too much. For this reason, also in a "softkey input", alter operation became difficult and there was a problem of not being suitable in the input and the long duration input of a long text which require speed.
[0006] The purpose of this invention is to offer the high touch type key input equipment of input operability, securing portability.
[0007]
[Means for Solving the Problem] Two or more letter keys 21-32 as which, as for the touch type key input equipment of this invention, at least two alphabetic characters were displayed on the front face of one key, The input distinction means 72 which can distinguish the migration direction in the bar touch input which moves more than predetermined die length and is inputted, touched from the point which said letter key detected having been touched and touched first in the field of said letter key, It is characterized by having an alphabetic character selection output means 73 to choose and output the

alphabetic character displayed on said migration direction side to the criteria location of said letter key, according to said migration direction distinguished by this input distinction means.
[0008] In such this invention, an input distinction means recognizes the migration direction at the time of a bar touch input for every letter key, and an alphabetic character selection output means chooses and outputs the alphabetic character displayed on the migration direction side in each letter key. For this reason, since the alphabetic character in the location corresponding to the bar touch alter operation of the alphabetic character displayed on the key front face (keytop) of each letter key is chosen and outputted, alter operation can be grasped intuitively and easily and input operability can be improved. Furthermore, since the alphabetic character displayed on each letter key can be checked by viewing in the case of alter operation, alter operation can be done simply and quickly.
[0009] Moreover, at least two alphabetic characters and since about eight pieces can be set up from two pieces, the number of letter keys can usually set two or more kinds of alphabetic characters, such as symbols, such as ten characters of the figures 0-9 for an input of the alphabet of 26 characters used for a Japanese Roman alphabet input and a Japanese English input, various numbers, etc., and a parenthesis, as one letter key at each letter key, even if it is 12 pieces, about 15 pieces, and few cases.
[0010] For example, if a setup of 30 kinds of alphabetic characters is possible at the maximum if it sets an alphabetic character at a time as each two letter keys when 15 letter keys are set up, and it is the alphabet of 26 characters, it can fully set up. Moreover, if it sets an alphabetic character at a time as each four letter keys when 12 letter keys are set up, even if a setup of 48 kinds of alphabetic characters is possible at the maximum and it is a total of 36 kinds of alphabetic characters of the alphabet of 26 characters, and ten figures, it can fully set up.
[0011] Thus, since two or more kinds of alphabetic characters can be set as one letter key, the number of letter keys can be lessened compared with the conventional "softkey input", and portability can be secured. Furthermore, since the number of letter keys can be lessened, each letter key can be enlarged or migration length at the time of actuation can be made small, input operability can be improved. On the other hand, compared with a "handwriting input", input speed can be improved and the input of long duration is attained quickly.
[0012] And since each letter key can be enlarged in this way, a user can use certainly the bar touch alter operation to each migration direction properly. For this reason, a user can choose an alphabetic character to choose certainly and can improve input operability. Furthermore, if a letter key becomes large, since the distinction range of each migration direction by the input distinction means will also spread, the migration direction can be distinguished certainly. Moreover, although it is necessary to change the migration direction, an alphabetic character input is possible only by performing the count of a bar touch input once, input speed is raised and input operability can be improved.
[0013] In addition, especially predetermined die length is not limited and shows die length other than the point (-) which does not move by carrying out only a touch into the field of each letter key (migration length is less than the set point, and is very short) of being touched ordinarily. Therefore, as long as it carries out the first touch into the field of each letter key, you may move across the field.
[0014] Said input distinction means the migration direction at the time of said bar touch input here The direction of the lower left, It can distinguish in the eight directions of down, the direction of the lower right, the direction of the upper left, above, the direction of the upper right, the left, and the right. Said alphabetic character selection output means In the front face of each letter key, when the alphabetic character is displayed in the migration direction of the bar touch input distinguished with said input distinction means from the criteria location, it is desirable to choose and output the alphabetic character.
[0015] If it does in this way, a maximum of eight kinds of alphabetic characters can be set as one letter key. For this reason, 96 characters can be set up, for example by 12 letter keys. Therefore, various alphabetic characters, such as the alphabet of 26 characters the object for a Japanese Roman alphabet input and for an English input, and ten characters of the figures 0-9 for an input of various numbers etc., other notations, can be set up and inputted into each letter key. In addition, if it sets up so that the Japanese input by the Roman alphabet input may be performed, since 70 remaining characters other than the alphabet of 26 characters can be set to other symbols, alphabetic characters, etc., more notations etc.

can be set up. Moreover, although it is necessary to change the migration direction, an alphabetic character input is possible only by performing the count of a bar touch input once, input speed is raised and input operability can be improved.

[0016] Here, as for said letter key, it is desirable that 4 steps of vertical right-and-left 3 train or 12 3 steps of vertical right-and-left 4 trains are established at least. If it has such 12 letter keys, the input of a figure and the alphabet will be attained by setting ten figures to "0-9" as the letter key according to individual, and setting the 2-3 alphabet of 26 characters at a time as each letter key especially. For this reason, like a portable telephone, in the device equipped with 12 keys from the first, the input of a figure and the input of the alphabet (a Roman alphabet input and English input) can be performed, and convenience can be raised. For example, when the migration direction is set up in the eight directions possible [distinction], a setup of a maximum of 96 kinds of alphabetic characters is possible at 12 letter keys, and when it sets up in the four directions possible [distinction], a setup of a maximum of 48 kinds of alphabetic characters is possible. In order to set up the alphabet of 26 characters to 12 letter keys, what is necessary will be just to set it as each letter key possible [distinction of three directions] at least.

[0017] Moreover, the criteria location of said letter key is a flat-surface center position of a letter key, and, as for said alphabetic character selection output means, it is desirable in the front face of each letter key to choose and output the alphabetic character displayed in the migration direction of the bar touch input distinguished with said input distinction means from the center position.

[0018] A criteria location is based on the longitudinal directions of the flat-surface center position in each key front face, i.e., a key front face, and if it is in the location based on the vertical directions, since the alphabetic character in the upper left side of a key can be inputted by the bar touch input to the direction of the upper left, the alphabetic character in the lower right side of a key can be inputted by the bar touch input to the direction of the lower right and a user can understand alter operation intuitively, operability can be improved. That is, since the alphabetic character in the location corresponding to the bar touch alter operation of the alphabetic character displayed on the keytop of each letter key is chosen and outputted, alter operation can be grasped intuitively and easily and input operability can be improved. Furthermore, since the alphabetic character displayed on each letter key can be checked by viewing in the case of alter operation, alter operation can be done simply and quickly.

[0019] Here, at least two kinds of alphabetic characters are displayed on said letter key among a figure, the alphabet, and three kinds of alphabetic characters of a notation, respectively, and, as for said alphabetic character selection output means, it is desirable to choose and output the alphabetic character displayed on said migration direction side to the criteria location of said letter key according to said migration direction distinguished by said input distinction means. According to such a configuration, it can input without not only the alphabet but a figure, a notation, etc. switching input mode, and the text in which a figure and a notation are intermingled can also be inputted easily.

[0020] Moreover, at least two kinds of alphabetic characters are displayed on said letter key, respectively among a figure, the alphabet, a kana alphabetic character, and four kinds of alphabetic characters of a notation, and said alphabetic character selection output means may choose and output to it the alphabetic character displayed on said migration direction side to the criteria location of said letter key according to said migration direction distinguished by said input distinction means. According to such a configuration, it can input without a figure, a notation, etc. switching input mode to the alphabet or a kana alphabetic character pan, and the text in which these various alphabetic characters are intermingled can also be inputted easily.

[0021] The lower left side of the keytop of said letter key, even if there are few bottom and lower right sides, said alphabet is displayed on either here. The upper left side of the keytop of said letter key, even if there are few top and upper right sides, said notation is displayed on either. Said figure is displayed on either [at least] the right-hand side of the keytop of said letter key, or left-hand side. Said input distinction means The migration direction at the time of said bar touch input can be distinguished in the eight directions, the direction 106 of the lower left, down [107], the direction 108 of the lower right, the direction 101 of the upper left, above [102], the direction 103 of the upper right, the left 104, and

the right 105. As for said alphabetic character selection output means, it is desirable to choose and output the alphabetic character displayed on the direction 101-108 side distinguished by said input distinction means to the center position of said letter key.

[0022] If it does in this way, a maximum of eight kinds of alphabetic characters can be set as one letter key. For this reason, 96 characters can be set up by 12 letter keys. Therefore, various alphabetic characters, such as the alphabet of 26 characters the object for a Japanese Roman alphabet input and for an English input, and ten characters of the figures 0-9 for an input of various numbers etc., other notations, can be set up and inputted into each letter key. In addition, if it sets up so that the Japanese input by the Roman alphabet input may be performed, since 70 remaining characters other than the alphabet of 26 characters can be set to other symbols, alphabetic characters, etc., more notations etc. can be set up. Moreover, although it is necessary to change the migration direction, an alphabetic character input is possible only by performing the count of a bar touch input once, input speed is raised and input operability can be improved.

[0023] Moreover, the lower left side of the keytop of said letter key, even if there are few bottom and lower right sides, said alphabet is displayed on either. The upper left side of the keytop of said letter key, even if there are few top and upper right sides, said notation is displayed on either. Said figure is displayed on the left-hand side of the keytop of said letter key. Said input distinction means The migration direction at the time of said bar touch input can be distinguished in at least three directions, above [102], down [107], and the left 104. Said alphabetic character selection output means Leftward [said] when [said] a bar touch input is carried out Said figure is chosen and outputted. To above [said] when [said] a bar touch input is carried out According to the count of the bar touch input, the upper left side, the alphabetic character displayed on said letter key is chosen in order by the side of a top and the upper right, and is outputted. To down [said] when [said] a bar touch input is carried out You may constitute so that the alphabetic character displayed on said letter key may be chosen in order by the side of the bottom and the lower right and may be outputted the lower left side according to the count of the bar touch input.

[0024] Thus, since the comparatively large range which can be distinguished can be taken compared with that distinction of the three directions of the vertical left is possible at least, then the case where can distinguish the direction, for example, it sets up in the eight directions in the area which trichotomized the field of a keytop, gap of the migration direction for every operator etc. can be absorbed, the migration direction can be recognized certainly, and input operability can be improved. In addition, although the sequential selection of the alphabetic character displayed on the letter key was made to be made to right-hand side from left-hand side according to the count of a bar touch input, you may make it chosen from right-hand side to left-hand side, and especially the sequence chosen is not limited, for example. However, the direction chosen in an order from left-hand side has an advantage in respect of facility by that of concordance or a cone.

[0025] In addition, the direction which can be distinguished is good also as not the three directions of the vertical left but four directions of vertical and horizontal. In that case, since the direction can be distinguished in the area which quadrisected the field of a keytop equally and it is easy to use the bar touch actuation to each direction properly, input operability can be improved.

[0026] Here, although there is an advantage which can make large the range which can be distinguished compared with the case where it considers as eight directions as mentioned above when the migration direction which can be distinguished is made into three directions, it is necessary to perform the count of actuation of a bar touch input two or more times.

[0027] As for said at least 12 letter keys, it is desirable that it is prepared, the alphabetic character of "A", "I", "U", "E", and "O" which are the alphabet which expresses a vowel with five [21-25] of 12 letter keys is displayed on each key according to an individual, and other 21 characters of the alphabet are shown three characters at a time to other seven letter keys 26-32 by each key.

[0028] with such a configuration, since "I, a vowel, i.e., "A", with the highest operating frequency,", "U", "E", and "O" were set as the separate key also in Japanese or English, these alphabetic characters only touch a key (a pin touch, tap input) -- etc. -- it can set up so that it can input easily. For this reason,

the operability at the time of a Roman alphabet input or an English input improves, and a high-speed input also becomes possible.
[0029] Moreover, said at least nine letter keys may be prepared, and each alphabet of "QWE", "RTY", "UIOP", "ASD", "FGH", "JKL", "ZXC", "VBN", and "M" may be displayed on nine letter keys, respectively. With such a configuration, it is used more widely than before, and Key Caps based on the QWERTY array got used and loved can be set as nine letter keys, and for the person familiar to a QWERTY array, Key Caps can be memorized easily and can be used immediately.
[0030] Furthermore, said at least nine letter keys may be prepared, and each alphabet of "ABC", "DEF", "GHI", "JKL", "MNO", "PQRS", "TUV", and "WXYZ" may be displayed on nine letter keys, respectively. With such a configuration, since the alphabet used for a Roman alphabet input is arranged in the alphabetical order like "A, B, C, --Z", operability can be improved that it is easy to grasp Key Caps. Since it is very much [identically / especially the array of the alphabet in each letter key / to the array widely used with the portable telephone now, or] similar, the user of a portable telephone can grasp the array of the alphabetic character easily, and can improve input operability further.
[0031] Here, in the keytop of said letter key, said alphabetic character selection output means may choose and output the alphabetic character beforehand set up corresponding to the direction, when said bar touch input is performed in the direction in which said alphabetic character is not displayed.
[0032] Although an input distinction means recognizes the migration direction at the time of a bar touch input for every letter key and an alphabetic character selection output means chooses and outputs the alphabetic character displayed on the migration direction side in each letter key in such invention When said bar touch input is performed in the direction in which the alphabetic character is not displayed When said bar touch input is performed in the direction in which the alphabetic character is not displayed according to such a configuration that chooses and outputs the alphabetic character set up beforehand Since the alphabetic character set up beforehand can be chosen and outputted, the alphabetic character which is not written by the keytop can also be inputted and the alphabetic character which can be inputted can be made [more]. When printing an alphabetic character beforehand on a sheet etc. especially, the alphabet which is common in Japanese or English is printed, and if it enables it to input by performing a bar touch input in the direction in which the alphabetic character is not displayed, without printing, an alphabetic character peculiar to Japanese or English can communalize the sheet of a letter key in Japanese or English, and can reduce cost. Furthermore, since the alphabetic character which is not displayed on a keytop can also be inputted, there is no need of displaying all the alphabetic characters that can be inputted on each keytop, and only an alphabetic character with high frequency, such as the alphabet and a figure, can also be displayed. Thereby, even when a key is small, the graphic size written can be secured to some extent, and it can be made the key input equipment which is easy to recognize at the time of actuation.
[0033] Moreover, said input distinction means moves more than predetermined die length, touched from the point first touched in the field of said letter key. It is constituted possible [distinction of the both-way bar touch alter operation made / hard flow / to carry out predetermined die-length migration toward the original location furthermore, and its direction]. An alphabetic character selection output means When a both-way bar touch input is performed, the alphabetic character beforehand set up according to a both-way bar touch input and its direction may be chosen and outputted.
[0034] Furthermore, the right-turn bar touch alter operation which said input distinction means moves more than predetermined die length, touched from the point first touched in the field of said letter key, breaks rightward to the migration direction further, and carries out predetermined die-length migration migration, It is constituted possible [distinction of the migration direction until it turns to the right or turns left from the point which broke leftward and touched the beginning in the left-turn bar touch alter operation which carries out predetermined die-length migration, and said right-turn and left-turn bar touch alter operation]. An alphabetic character selection output means may choose and output the alphabetic character set up according to the migration direction until it turns to the right or turns left from the point which touched right-turn or a left-turn bar touch input, and the beginning, when right-turn or a left-turn bar touch input is performed.

[0035] If it constitutes so that different alter operation from the usual bar touch inputs, such as these both-way bar touch inputs, a right-turn bar touch input, and a left-turn bar touch input, can be recognized, the character string set up beforehand can be inputted besides the usual alphabet, a kana alphabetic character, a figure, a notation, etc. For example, in the idiom of the phonetic reading kanji used by the Japanese text, since regularity is in the pronunciation, if it enables it to input the alphabetic character of the regulation that frequency is high, by one actuation, Japanese input effectiveness can be improved. [many] That is, with the phonetic reading kanji, a tail becomes a prolonged sound, a syllabic nasal, and a geminated consonant in many cases. It follows, for example, a prolonged sound (AI, UU, EI, OU, YUU, YOU) is inputted in a both-way bar touch input, and in a left-turn bar touch input, by the syllabic nasal (****, ****, ****, ****, ** not coming) and the right-turn bar touch input, its tail can improve Japanese input effectiveness, if a tail enables it to input the alphabetic character of geminated consonants (****, ****, ****, ****, ****, etc.).

[0036] The direct-input mode in which the touch type key input equipment of this invention inputs the alphabet which the alphabetic character of the "**" stage which expresses each line in 50 sound array of the alphabet and a kana alphabetic character with said letter key was displayed, and was displayed on the letter key at least, It has an input mode change means by which the kana input mode which inputs the kana alphabetic character in which only the alphabetic character of a "**" stage was displayed can be changed. Said alphabetic character selection output means When set as direct-input mode by the input mode change means According to said migration direction distinguished by the input distinction means, the alphabet displayed on said migration direction side to the criteria location of said letter key is chosen and outputted. When set as kana input mode, it may be characterized by choosing and outputting the kana alphabetic character virtually set to said migration direction side to the criteria location of said letter key.

[0037] For example, when 12 keys are set up and migration of eight directions can be detected, 96 alphabetic characters can be set up at the maximum. Even in such a case, for example, supposing it sets a figure and three notations as each letter key, the remainder can set up only a 12 piece x4 direction =48 piece alphabetic character. For this reason, for example, even if it is going to set a Japanese kana alphabetic character (50 sound array) and alphabet [of 26 characters] both up, it cannot set up. On the other hand, like this invention, a kana alphabetic character is arranged virtually, and if the input-statement character at the time of the bar touch in each letter key is set up so that it can change in the input mode, since a Japanese kana alphabetic character and the Japanese alphabet can be changed and inputted and more alphabetic characters can be inputted in a bar touch input, input operability can be improved.

[0038] The touch type key input equipment of this invention is equipped with an input area setting means to set it as the input area which summarized said two or more keys virtually. Said input distinction means When the input area which consists of two or more keys with said input area setting means is set up virtually It is constituted possible [distinction of the migration direction of the bar touch input performed in the input area]. Said alphabetic character selection output means According to said migration direction distinguished by the input distinction means, the alphabetic character set to the 1st of the letter key arranged to the criteria location of said input area at said migration direction side is chosen and outputted. And when predetermined alter operation is performed in input area following said bar touch input, it may be characterized by choosing and outputting the alphabetic character corresponding to the alter operation in the letter key chosen in said bar touch input.

[0039] According to such a configuration, two or more letter keys, for example, six letter keys, and 12 letter keys other than input mode are set up with one input area, and a setup of the blind input mode which enables a blind bar touch input by the thing for which a bar touch input is performed for every letter key, and for which input area is enlarged is usually enabled. For this reason, since bar touch alter operation becomes possible and big input area can be set up compared with a letter key even if it does not see each key, alter operation can carry out still more easily. In addition, in blind input mode, in one letter key, so to speak, it will consider that input area is one key, and will be chosen and inputted in the input area which consists of two or more letter keys in what was choosing and outputting the alphabetic

character displayed in the migration direction according to the bar touch input direction, the key, i.e., the alphabetic character, which exists in the bar touch input direction. In addition, since two or more alphabetic characters are set as each key, the 1st alphabetic characters (alphabet etc.) are inputted in the bar touch input in said input area. The alphabetic characters (the alphabet, a kana alphabetic character, a figure, notation, etc.) of the 2nd henceforth (1) after choosing each letter key in said bar touch input, specify by the count of a tap input (pin touch actuation touched so that it may not be made to move more than predetermined die length after touching a key with a pen), or (2) What is necessary is just to specify by performing the bar touch (for example, if it being figure and being the left bar touch-and notation bar touch of the right) input to the direction decided beforehand, after choosing each letter key in said bar touch input.

[0040] The touch type key input equipment of this invention is equipped with an input area setting means to set it as the input area which summarized said two or more keys virtually. Said input distinction means When the input area which consists of two or more keys with said input area setting means is set up virtually The migration direction of the 1st and 2nd bar touch inputs continuously performed in the input area is constituted respectively possible [distinction]. Said alphabetic character selection output means It responds in the migration direction of the 1st bar touch input distinguished by the input distinction means. It may be characterized by choosing and outputting the alphabetic character corresponding to the migration direction of said 2nd bar touch input in the letter key as which the letter key arranged to the criteria location of said input area at said migration direction side was chosen as, and the parenthesis was chosen.

[0041] Also in this configuration, the blind bar touch input using the input area set up by two or more letter keys can be performed, and alter operation can be simplified further. In addition, in the blind input mode of this invention, so to speak, it considers that the input area which consists of two or more letter keys is one key by the 1st bar touch input, and the letter key which exists in the bar touch input direction is chosen. And the alphabetic character of the 2nd bar touch input direction in the selected letter key is chosen and outputted like said each invention by the 2nd bar touch input. Thus, since alter operation is systematic, it can memorize easily and input operability can be improved.

[0042] Said letter key is displayed on the keyboard sheet 5 here. This keyboard sheet 5 It is stuck on the touch input detection area 4 which can detect the touch by the touch type input means 71. Said input distinction means It is desirable to be constituted to recognize the field of each letter key on said stuck keyboard sheet, and possible [distinction of the migration direction at the time of said bar touch input in the field corresponding to each of these letter keys].

[0043] Here, a touch type input means is so-called pen, so-called finger, etc. for a touch input, this pen etc. is made to touch touch input detection area, and an alphabetic character can be inputted. Moreover, touch input detection area is area where an alphabetic character, a special character like a picture drawn without lifting the brush from the paper, etc. are written in with the above-mentioned pen etc., and various means, such as a pressure detection mold, and an optical mold, an electrostatic-capacity mold, have detected the touch with these pens etc. As for the case where such touch input detection area is generally established in the screen itself, such as a liquid crystal screen, a liquid crystal screen, etc., the pad of dedication may be prepared independently. In addition, it is also possible to set up a handwritten alphabetic character, a handwritten graphic form, etc. which were written in this touch input detection area so that it may be outputted to a liquid crystal screen etc. as it is.

[0044] According to such a configuration, in the touch type key input equipment using the touch type input means used from the former, a keyboard sheet is stuck on the touch input detection area, a predetermined setup is only carried out to an input distinction means, it can treat like a common keyboard, and an alphabetic character input is easy. Moreover, since a keyboard sheet can also be removed easily, a setting change of the input approach is made at a handwriting input if needed to, input a handwritten alphabetic character, a handwritten graphic form, etc. as mentioned above for example. That is, the different input approach can be used together. Furthermore, when the whole screen is touch input detection area, a screen can be widely used by removing a keyboard sheet. In case the homepage of the Internet, an image, a table, etc. are seen especially, the range displayed at once becomes large and

there is an advantage of being legible.
[0045] Moreover, while said letter key is displayed on Screen 13, said input distinction means recognizes the field of said letter key displayed on a screen, and may be constituted possible [distinction of the migration direction at the time of said bar touch input in the field corresponding to each of these letter keys]. Thus, if constituted, since a letter key will be displayed on a screen, a predetermined setup is only carried out to an input distinction means, it can treat like a common keyboard, and an alphabetic character input is easy. Moreover, when the whole screen is touch input detection area, a screen can be widely used by not displaying a letter key. In case the homepage of the Internet, an image, a table, etc. are seen especially, the range displayed at once becomes large and there is an advantage of being legible.
[0046]
[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained based on a drawing.
[1st operation gestalt] drawing 1 is drawing showing the touch type key input equipment 1 of the 1st operation gestalt concerning this invention. As shown in drawing 1 , the touch type key input equipment 1 of this invention is a Personal Digital Assistant (PDA), is equipped with the body 2 with which the liquid crystal screen 3 and the pad-like touch input detection area 4 are established in the front face, and the keyboard sheet 5 used sticking on the touch input detection area 4, and is constituted.
[0047] Although not illustrated, the pen used as a touch type input means is attached to touch type key input equipment 1. For this reason, it is desirable that form the holder holding a pen etc. in the body 2, and it enables it to prevent loss of a pen. And what is necessary is to have a body 2 with the left hand (right hand), or to place on a desk etc., to grasp a pen with the right hand (left hand), and just to operate it, in using touch type key input equipment 1.
[0048] The alphabetic character received through inputted communication lines, such as an alphabetic character and the Internet, other images, etc. are displayed on the liquid crystal screen 3. Touch actuation was made with the above-mentioned pen, and the touch input detection area 4 has detected the pressure of the pen at the time of being the touch actuation. In addition, by writing an alphabetic character, a graphic form, etc. in this touch input detection area 4, it is also a setup as which that written-in alphabetic character and graphic form are inputted as it is, for example, a handwritten map etc. can be inputted.
[0049] The keyboard sheet 5 has 12 letter keys 21-32 of 4 steps of vertical right-and-left 3 train, and 15 function keys 51-65 formed in the both sides of the letter keys 21-32, as shown also in drawing 2 . Each keys 21-32, and 51-65 are the following arrays as a standard array (Japanese-English combination), and a Japanese Roman alphabet input is possible for them. In addition, if touch actuation of the function key 63 which the keyboard sheet 5 is stuck on the touch input detection area 4, and is mentioned later is carried out, the predetermined function corresponding to each and the input of an alphabetic character of each keys 21-32, and 51-65 will be attained.
[0050] In the left-hand side (left side to a keytop core) of the keytop of each letter keys 21-32 To the 1st step three letter keys 21-23, sequentially from a left-hand side letter key at a letter key 21 a figure "1" A figure "2" is set as a letter key 22, and a figure "3" is set as a letter key 23. To the 2nd step three letter keys 24-26, from left-hand side at a letter key 24 a figure "4" A figure "5" is set as a letter key 25, and a figure "6" is set as a letter key 26. To the 3rd step three letter keys 27-29, from left-hand side at a letter key 27 a figure "7" a figure "8" sets it as a letter key 28, and a figure "9" sets it as a letter key 29 -- having -- the 4th step three letter keys 30-32 -- the letter key 30 from left-hand side -- a figure "0" -- a letter key 31 -- a notation -- "-- the notation "." is set as the letter key 32 for ".
[0051] moreover, to the keytop up side of each letter keys 21-32 If shown in order of the left-hand side (the direction side of the upper left to a keytop core), middle (above side to a keytop core), and right-hand side (the direction side of the upper right to a keytop core) To a letter key 21 at "{}"" and a letter key 23 at "()'" and a letter key 22 """^", a letter key -- 24 -- "-- < -- > -- ` -- " -- a letter key -- 25 -- "-- [--] -- a tilde -- a notation -- " -- a letter key -- 26 -- "/% -- **" and a letter key 27 -- "-+=" and a letter key 28 -- "@*#" and a letter key 29 -- "\&$" and a letter key 30 -- "-:;" and a letter key 31 -- "-- _ -", and a

letter key 32 -- ". !?" is set up, respectively.
[0052] Furthermore, a vowel "A", "I", "U", "E", and "O" are independently set to five letter keys 21-25 among 12 letter keys 21-32 at the lower left side (the direction side of the lower left to a keytop core).
[0053] Moreover, other 21 characters are set three characters at a time to other letter keys 26-32. if it is specifically shown to a keytop core in order by the side of the direction of the lower left, down, and the direction of the lower right -- a letter key 26 -- "RML" is set as "SZJ" and a letter key 29 by "TDV" and the letter key 30, and is set as "it is "KGF to YWX" and a letter key 27", and a letter key 28 by "NCQ" and the letter key 31 at "HBP" and a letter key 32, respectively. namely, a Japanese Roman alphabet input -- setting -- "**** and a Sa line -- a Ta line -- a line -- The consonant "K, S, T, N, H, R, Y" which inputs a limping gait, ****, and ****" is displayed on the direction side of the lower left of each letter keys 26-32. "The consonant "G, Z, D, B" which inputs "****, ****, snaking, and ****" A Ma line, The consonant "M, W" and "C" which input a Wa line" are displayed on the down side of each letter keys 26-32, and the consonant "P" which inputs "****", and "F, J, V, Q, L, X" are displayed on the direction side of the lower right of each letter keys 26-32.
[0054] On the other hand, the various functions used at the time of a change and alphabetic character input of input mode are set to function keys 51-65. That is, the notation and alphabetic character which show the function in which it is inputted when those function keys 51-65 are pushed independently are displayed on the keytop of each function keys 51-65. In addition, as input mode, there are four input modes, "kana mode", "alphabet mode", "figure mode", and "symbolic mode." Under the present circumstances, according to the selected input mode, the alphabetic character corresponding to each input mode is displayed on the lower right of the liquid crystal screen 3.
[0055] Left-hand side and on the right-hand side of letter keys 21-32, the function keys 51-56 set as the same configuration as each letter keys 21-32 and magnitude, and 58-65 are arranged. first -- as the function key for changing input mode -- four function key 52- there are 54 and 56.
[0056] While being displayed on the front face as a "figure" and changing input mode to the "figure mode" for a figure input, the function which displays the alphabetic character of a "number" on the lower right of the liquid crystal screen 3 is set to the function key 52.
[0057] Moreover, while being displayed on the front face as a "notation" and changing input mode to the "symbolic mode" for symbol inputs, the function which displays the alphabetic character of an "account" on the lower right of the liquid crystal screen 3 is set to the function key 53.
[0058] While it is displayed on the front face as "**/A" by the function key 54 and it changes input mode to "kana mode", the function which changes the "kana mode" to "hiragana mode" or "katakana mode" is also set to it. In addition, the function which displays the alphabetic character of "**" on the lower right of the liquid crystal screen 3 when it changes to "hiragana mode", and displays that the alphabetic character of "A" changes to "katakana mode" on the lower right of the liquid crystal screen 3 is also set up.
[0059] It is displayed on the front face as "a/A" by the function key 56, and the function which changes input mode to "lowercase letter mode" or "upper case letter mode" while changing to "alphabet mode" is set to it. In addition, the function which displays the alphabetic character of "a" on the lower right of the liquid crystal screen 3 when it changes to "lowercase letter mode", and displays that the alphabetic character of "A" changes to "upper case letter mode" on the lower right of the liquid crystal screen 3 is also set up.
[0060] On the other hand, as a function key which assists the edit in the case of other alphabetic character inputs etc., a notation like a right arrow is displayed on the front face by the function key 51, and the function of a tab key to move cursor to the right at fixed spacing is set to it. Moreover, a notation like an upper arrow head is displayed on the front face by the function key 55, it has in it the function which changes the alphabet at the time of inputting one character in alphabet mode to a capital letter or a small letter, and the function which changes the time (Cana) of inputting one character in "hiragana mode" and "katakana mode" to a capital letter or a small letter, and the function of a general Shift-key is set to it.
[0061] It is displayed on the front face as "BS" by the function key 58, and the function of a back space

key to delete one character on the left-hand side of a cursor location is set to it. When continue the letter key to which the notation illustrating an arrow head on either side etc. is displayed on the front face by the function key 60, and the alphabet and three notations are located in a line with it and carrying out touch actuation, the Pause key have the function which divides in the pin touch actuation at the time of the pin touch actuation mentioned later, and the function which repeat in the alphabetic character inputted immediately before when pin touch actuation is performed twice in succession is set up.
[0062] The notation illustrating an arrow head is displayed on the front face by the function key 62, and the function a new line for is started after decision of an undecided alphabetic character or decision is set to it. The function as a conversion key which is displayed on the front face as "conversion", is inputted continuing in changing an input-statement character into the kanji etc. ****, and displays a conversion candidate is set to the function key 64.
[0063] In addition, if the touch type key input equipment 1 of this operation gestalt is started, it will display an initial screen on the liquid crystal screen 3 first. Out of the various menus of the initial screen, a user chooses the function for which it asks (software), for example, schedule management, an address book, etc., and is performing various functions. For this reason, it has each following function key and the other function keys which are immediately changed to screens other than alphabetic character inputs, such as such an initial screen. The notation illustrating a house is displayed on the front face by the function key 59, and the so-called home function changed to an initial screen is set to it.
[0064] The notation illustrating a table and an arrow head is displayed on the front face by the function key 61, and the so-called menu facility changed to a menu screen is set to it. The notation containing the alphabetic character of "A" is displayed on the front face by the function key 63, and the function which enables the input by the keyboard sheet 5 is set to it. The notation illustrating a magnifying glass is displayed on the front face by the function key 65, and the so-called retrieval function is set to it.
[0065] Moreover, a function key 57 is a function key which has the magnitude of abbreviation two times in a longitudinal direction compared with the other keys 21-32, 51-56, and 58-65, it is displayed on the front face as "Space", and, in addition to the function to input a tooth space, the function as a conversion key is also set up.
[0066] Next, the internal configuration which realizes touch type key input equipment 1 is explained with reference to drawing 3 . Drawing 3 is the block diagram of the internal configuration which realizes touch type key input equipment 1. Touch type key input equipment 1 is equipped with the touch type input means 71 which is a pen as above-mentioned, the input distinction means 72, and the alphabetic character selection output means 73, and is constituted.
[0067] When the keyboard sheet 5 is stuck on the touch input detection area 4, the input distinction means 72 has recognized each field corresponding to each letter keys 21-32 on the touch input detection area 4, and has detected whether the touch input in each field was carried out with the pen which is the touch type input means 71.
[0068] After touching each letter keys 21-32 with a pen, specifically, the input distinction means 72 is constituted so that the pin touch actuation (tap actuation) touched so that it may not be made to move more than predetermined die length, and the bar touch actuation to which it is made to move more than predetermined die length can be distinguished. Furthermore, as shown in drawing 4 , after the input distinction means 72 touches the tip of a pen at each letter keys 21-32 When bar touch actuation to which it is made to move by predetermined die length, touched in the direction of either of eight directions each (the direction 101 of the upper left, above [102], the direction 103 of the upper right, the left 104, the right 105, the direction 106 of the lower left, down [107], the direction 108 of the lower right) is performed It is constituted so that the migration directions 101-108 by the bar touch actuation can be distinguished.
[0069] And seven directions except the right 105 support the location (direction) to the keytop center position (criteria location of a letter key) of a maximum of seven kinds of alphabetic characters displayed in the keytop in each letter keys 21-32 among these eight directions as above-mentioned. That is, the relative position of each alphabetic character which a maximum of seven kinds of alphabetic characters are set to each letter keys 21-32, and was displayed on the keytop of each letter keys 21-32,

the location, i.e., the direction, over a keytop center position, i.e., a ****** location, It is set up so that the eight directions 101-108 of as a migration direction mentioned later may correspond, and at the time of bar touch alter operation, the alphabetic character by the side of the migration direction is inputted according to the migration directions 101-108 of the alter operation.

[0070] As an approach of distinguishing the difference in touch alter operation As shown in drawing 4 , after touching the tip of a pen at each letter keys 21-32 Bar touch actuation to which it is made to move by predetermined die length, touched in the direction of either of eight directions each (the direction 101 of the upper left, above [102], the direction 103 of the upper right, the left 104, the right 105, the direction 106 of the lower left, down [107], the direction 108 of the lower right) is performed. The bar touch input whose input distinction means 72 distinguishes and inputs the migration directions 101-108 by the bar touch actuation is adopted.

[0071] As shown in drawing 5 , such a bar touch input from the starting point (A) which touches a letter key 27 first Supposing it moves a pen across the field of a letter key 27, touched like a path 109, it stops the touch with a pen at a terminal point (B) and it separates a pen from the keyboard sheet 5 The input distinction means 72 detects the letter key 27 corresponding to the starting point (A), and distinguishes the direction 103 of the upper right which is the direction of the terminal point (B) seen from the starting point (A) as shown in the arrow head 110 in drawing as a migration direction. Under the present circumstances, since that migration direction is distinguished, it is not limited to the path 109 of a touch by the starting point (A) and the terminal point (B). In addition, it can input by the same actuation also as the direction of [other than direction of the upper right 103].

[0072] In addition, the approach of distinguishing the migration direction according to the starting point (A) and a terminal point (B) Although not limited especially, when it sees from the starting point (A) and makes above [102] into the include angle of 0 degree (360 degrees), for example What is necessary is just to distinguish from the direction 108 of the lower right, when the time of seeing from the starting point (A) and being in the include-angle range which is 45 degrees whose terminal points (B) are 22.5 degrees - 337.5 degrees is distinguished from above [102] and it is in the include-angle range of 112.5 degrees - 157.5 degrees. That is, what is necessary is just to distinguish whether it is in include-angle within the limits divided 45 degrees at a time into eight.

[0073] On the other hand, the alphabetic character selection output means 73 chooses the alphabetic character displayed on the migration direction 101-108 side in the case of the bar touch input in the keytop of each letter keys 21-32 based on distinction with the input distinction means 72, and displays the alphabetic character on the liquid crystal screen 3. In addition, although the alphabetic character is not displayed on the right 105 side of the keytop of letter keys 21-32, when it moves rightward [105], the alphabetic character by the side of the left 104 (figure) is chosen and displayed.

[0074] As shown in drawing 6 , supposing it carries out the bar touch input of the letter key 27, first, it detects that the input distinction means 72 was touched in the letter key 27 with the pen, and when it moves to down [of a letter key 26 / 107], touched from the point which the pen touched, the migration by the side of down [the / 107] will more specifically be distinguished. Then, the alphabetic character selection output means 73 chooses the alphabetic character on the keytop corresponding to the distinguished migration direction 107 "G", and outputs the alphabetic character of "G" to the liquid crystal screen 3. When similarly the alphabetic character of "=" is chosen and outputted when it moves in the direction 103 of the upper right, and it moves leftward [104], the alphabetic character of "7" is chosen and outputted. In addition, also when it moves rightward [105], the alphabetic character of "7" is chosen and outputted. Thus, a bar touch input is carried out.

[0075] In addition, such a bar touch input is usable in three input modes, "kana mode", "alphabet mode", and "figure mode", among four input modes, "kana mode", "alphabet mode", "figure mode", and "symbolic mode." When "symbolic mode" is chosen, it is because only a notation is inputted in many cases. However, also when "symbolic mode" is chosen, it is good even if usable in a bar touch input.

[0076] On the other hand, after choosing input mode using each function keys 51-65, the approach of distinguishing the difference in touch alter operation is also adopted. That is, after changing input mode using function keys 51-65, the pin touch input which judges the alphabetic character which performs pin

touch actuation which touches each letter keys 21-32 with a pen so that it may not be made to move more than predetermined die length, and is inputted by the count of the pin touch actuation is also possible. Below, each actuation of a pin touch input (tap input) and a bar touch input is explained in full detail.

[0077] After changing input mode, a [pin touch input (tap input)] pin touch input inputs each key by carrying out a tap 1- 3 times, actuation tends to memorize it and everyone can input it easily.

[0078] the mode corresponding to an alphabetic character to specifically input first out of four input modes, "kana mode", "alphabet mode", "figure mode", and "symbolic mode", -- each function key 52-54 and 56 are chosen by carrying out pin touch actuation. For example, it becomes each Japanese input mode of 1 time, "the kana input (hiragana input in which a kana-kanji conversion is possible)" in a Japanese Roman alphabet when pin touch actuation is carried out twice, or "the Cana input (katakana input)" about a function key 54. Namely, it will be in the condition that the alphabetic character displayed on the keytop bottom of each letter keys 21-32, i.e., the alphabet for a Japanese Roman alphabet input, can be inputted.

[0079] In Japanese input mode, if pin touch actuation of each letter keys 21-32 is carried out, the input distinction means 72 will distinguish the count of pin touch actuation. And if the alphabetic character selection output means 73 is one tap actuation, it will choose the alphabetic character by the side of the lower left displayed on the letter keys 21-32, and will output it to the liquid crystal screen 3. Similarly, if the alphabetic character selection output means 73 are two tap actuation, they will choose the alphabetic character of each letter-keys 21-32 bottom, and if they are three tap actuation, they will choose and output the alphabetic character by the side of the lower right of each letter keys 21-32.

[0080] That is, the input of the alphabetic character of "KGF" is attained in a letter key 27. Then, when pin touch actuation of this letter key 27 is carried out once, "K" is chosen, when pin touch actuation is carried out twice, "G" is chosen, and when a pin touch is carried out 3 times, the alphabetic character of "F" is chosen. After an alphabetic character input, in performing a kana-kanji conversion, a pin touch is carried out and it changes a function key 57.

[0081] In addition, in Japanese input mode, if the tap of the letter key 21 is carried out twice, a prolonged sound "-" will be inputted, and if the tap of the letter key 24 is carried out twice, a geminated consonant "**" will be inputted. Moreover, what is necessary is to use "Y" for the input of a contracted sound, for example, to carry out the tap of "TYO" 29, 26, and 25, i.e., the letter keys, by a unit of 1 time in the sequence for inputting "****", and just to input. furthermore, a syllabic nasal "**" -- "N" (key 30) -- 1 -- or a tap is carried out twice and it inputs. Moreover, in order to input the small letter of kana independently, after carrying out the tap of Shift-key 55 once, the alphabetic character is inputted.

[0082] Also when pin touch actuation of the function key 56 is carried out and it changes to alphabet mode (lowercase letter mode or upper case letter mode) It will be in the condition that the alphabetic character (alphabet) of the keytop bottom of each letter keys 21-32 can be inputted, and each lower right (in 3 times of the cases) alphabetic character will be chosen by the count (1 - 3 times) of the pin touch actuation like kanji mode the lower left (in 1 time of the case), and the bottom (in 2 times of the cases).

[0083] In addition, what is necessary is to carry out the tap of Pause key 60, and just to divide it, when the alphabet of the same key continues. Moreover, when continuing and inputting the same alphabet, a repeat input is carried out by carrying out the tap of Pause key 60 twice.

[0084] Moreover, when pin touch actuation of the function key 53 is carried out and it changes to symbolic mode, it will be in the condition that the alphabetic character (notation) of the keytop top of each letter keys 21-32 can be inputted, and each upper right (in 3 times of the cases) alphabetic character (notation) will be chosen by the count (1 - 3 times) of the pin touch actuation like the above-mentioned the upper left (in 1 time of the case), and a top (in 2 times of the cases).

[0085] furthermore, the thing done once for the pin touch actuation of each keys 21-32 since it will be in the condition that the alphabetic character on the left-hand side of [keytop] each letter keys 21-32 (a figure, notation) can be inputted when pin touch actuation of the function key 52 is carried out and it changes to figure mode -- several characters each and a comma -- "-- " and a period "." are inputted. Thus, the selected alphabetic character is outputted to the liquid crystal screen 3.

[0086] At the point which chooses an input-statement character with the number of taps, although the [bar touch input] above and a pin touch input are easy to become skilled since they are intelligible, they must change each mode. In Japanese, being used by the kanji, a hiragana, katakana, the alphabet, the figure, and the notation, being mixed, repeating the mode to whenever [the] and especially changing becomes actuation that a short sentence like "starting from AM8:30 on soil, July 9" is also troublesome, for example. So, in the bar touch input, without changing the mode as much as possible, it is devised so that the alphabet, figure, and notation of a letter key can be inputted.
[0087] In addition, this bar touch input and a pin touch input are used together, and can be used now. That is, if a bar touch input is performed when choosing input mode and having inputted the alphabetic character by pin touch actuation, regardless of the input mode chosen, alphabetic characters, such as the alphabet corresponding to the bar touch actuation, a notation, and a figure, can be inputted.
[0088] For example, although the alphabet for the Roman alphabet input of Japanese displayed on the keytop bottom according to the count of pin touch actuation is chosen and displayed when "kana mode" is chosen and a pin touch input is carried out The figure displayed on keytop left-hand side when a bar touch input was carried out is chosen and displayed the left 104 or rightward [105]. When the notation of the all directions opposite side is chosen when bar touch actuation is carried out in the direction 101 of the upper left, above [102], and the direction 103 of the upper right, and it is displayed and bar touch actuation is carried out in the direction 106 of the lower left, down [107], and the direction 108 of the lower right, the alphabet of the all directions opposite side is chosen and displayed. Therefore, the consonant dulness and for "M" of a consonant inputted by two - three pin touch actuation, "W", and p-sounds "G, Z, D, B, P" can be inputted by one bar touch actuation to down [107] or the direction 108 of the lower right.
[0089] Moreover, when "alphabet mode" is chosen and a pin touch input is carried out, the alphabet is displayed as above-mentioned, and on the other hand, as well as the above-mentioned when a bar touch input is carried out, the alphabetic character by the side of the migration direction in the case of bar touch actuation (the alphabet, a figure, notation) is chosen and displayed. Therefore, each alphabet inputted by two - three pin touch actuation can also be inputted by one bar touch actuation to down [107] or the direction 108 of the lower right. For this reason, in "alphabet mode", if the alphabet written at the lower left of [keytop] each keys 21-32 is inputted by pin touch actuation and the alphabet written by the bottom and the lower right is inputted by the bar touch actuation to down [107] or the direction 108 of the lower right, it can input very efficiently.
[0090] Although the figure displayed on keytop left-hand side is chosen and displayed when "figure mode" is chosen and a pin touch input is carried out When the notation of the all directions opposite side is chosen when bar touch actuation is carried out in the direction 101 of the upper left, above [102], and the direction 103 of the upper right, and it is displayed and bar touch actuation is carried out in the direction 106 of the lower left, down [107], and the direction 108 of the lower right, the alphabet of the all directions opposite side is chosen and displayed. In addition, also when "symbolic mode" is chosen, it is good as similarly possible in a bar touch input, and in this symbolic mode, since possibility of inputting other alphabetic characters is small, it is good also as possible only in the input of the notation by the pin touch input.
[0091] Thus, if bar touch actuation is performed, regardless of input mode, the direct input of each alphabet, a figure, and the notation can be carried out, and a very efficient input will be attained especially in the Japanese input in which various alphabetic characters are intermingled.
[0092] In addition, the array only for English in the case of using it for an English input as shown in drawing 7 in addition to the above standard arrays (Japanese-English combination) can also be used for the keyboard sheet 5. What is necessary is just to also change suitably the various letter keys and function key with which the alphabetic character and function of a Japanese input only were set up to compensate for modification of an array in that case. What is necessary is just to specifically change the letter keys 23, 24, 52-54 of a standard array, and 56 and 57. Moreover, in such an array only for English, four input modes, "capital letter input mode", "small letter input mode", "figure input mode", and "symbol input mode", can be chosen, and each alphabetic character of "A", "a", "1", and "*" is displayed

on the lower right of the liquid crystal screen 3 like the case of the above-mentioned standard array (Japanese-English combination) corresponding to each selected input mode.
[0093] Moreover, as shown in drawing 8 , the array which sets an alphabetic character as alphabetical orders used in the common portable telephone, such as "ABC" and "DEF", is employable. Various function keys may choose which array of a standard array and the array only for English in that case. Even when an array is changed like such drawing 7 and drawing 8 , the input of an alphabetic character and the output to the liquid crystal screen 3 are possible by the same touch input (a bar touch input, pin touch input) as the above-mentioned.
[0094] According to the above **** 1 operation gestalten, there is the following effectiveness.
(1) The input distinction means 72 distinguishes the migration directions 101-108 at the time of a bar touch input every letter key 21-32, and the alphabetic character selection output means 73 chooses and outputs the alphabetic character displayed on the migration direction 101-108 side in each letter keys 21-32. For this reason, since the alphabetic character in the location corresponding to that migration direction is chosen and outputted at the time of bar touch alter operation among the alphabetic characters displayed on the keytop of each letter keys 21-32, alter operation can be grasped intuitively and easily and input operability can be improved. Furthermore, since the alphabetic character displayed on each letter keys 21-32 can be checked by viewing in the case of alter operation, alter operation can be carried out simply and quickly.
[0095] (2) Even if it is 12 pieces and few letter keys 21-32, a total of 72 kinds of alphabetic characters of symbols of 36 characters, such as ten characters of the figures 0-9 for an input of the alphabet of 26 characters used for a Japanese Roman alphabet input and a Japanese English input, various numbers, etc. and a parenthesis, can be set as each letter keys 21-32. For this reason, it can be made easier for there to be sufficient operability and to input, since the alphabetic character beyond the class which can carry out a direct input by the common keyboard can be inputted.
[0096] (3) Since a maximum of seven characters were set as one letter keys 21-32, compared with the "softkey input" which it sets one character at a time as one conventional key, the number of letter keys 21-32 can be lessened sharply, and portability can be secured. Furthermore, since the number of letter keys 21-32 can be lessened, each letter keys 21-32 can be enlarged or migration length at the time of actuation can be made small, input operability can be improved. When using for a small pocket device etc. especially, the magnitude of the keyboard sheet 5 is also so large, and it cannot do, but since the number of keys can enlarge each key few, a stylus pen etc. can perform touch actuation easily.
[0097] (4) Since it set up so that a Japanese input might be carried out by the Roman alphabet input and the class of alphabetic character to set up can be lessened with the alphabet of 26 characters compared with the case of a general kana input, more alphabetic characters, notations, etc. can be set up.
[0098] (5) Since each letter keys 21-32 can be enlarged, a user can use certainly the bar touch alter operation to each migration directions 101-108 properly. For this reason, a user can choose an alphabetic character to choose certainly and can improve input operability. Furthermore, if letter keys 21-32 become large, since the distinction range of each migration directions 101-108 by the input distinction means 72 will also spread, the migration directions 101-108 can be distinguished certainly.
[0099] (6) The keyboard sheet 5 is stuck on the touch input detection area 4, only carry out a predetermined setup to the input distinction means 72, it can treat like a common keyboard, and an alphabetic character input is easy. Moreover, since the keyboard sheet 5 can also be removed easily, a setting change of the input approach is made at a handwriting input if needed to input a handwritten alphabetic character, a handwritten graphic form, etc. That is, the different input approach can be used together.
[0100] (7) Since the migration direction which can be distinguished was made into eight directions 101-108 and the alphabetic character required for an input was set as each letter keys 21-32, alphabetic characters, such as the alphabet, and a notation, a figure, can be inputted by one bar touch actuation, without changing input mode. For this reason, input speed is raised and input operability can be improved.
[0101] (8) Since the migration direction was made into 8 of the direction 101 of the upper left, above

[102], the direction 103 of the upper right, the left 104, the right 105, the direction 106 of the lower left, down [107], and the direction 108 of the lower right directions and spacing of each direction becomes respectively equal, the incorrect decision by the input distinction means 72 can be decreased. Moreover, since each directions 101-108 are also in the actuation when writing an alphabetic character and it is [they are very rhythmical and] easy to input them, they can improve input operability.
[0102] (9) the bar touch actuation direction of the alphabetic character inputted immediately before [the case where it is set up only leftward / 104 / since the figure which occurs frequently to the degree of the alphabet in a text was chosen by bar touch actuation to the left 104 and the right 105], and abbreviation -- since bar touch actuation is carried out and a figure can be inputted into the same direction side, it is easy a figure inputting into a text.
[0103] (10) Since the pin touch input was also adopted in addition to the bar touch input, without caring about the migration direction like a bar touch input, pin touch actuation of the inside of the field of each letter keys 21-32 is carried out, and it can input easily. Moreover, since both a bar touch input and a pin touch input can be chosen, in accordance with an application or liking, it is selectable and operability can also improve.
[0104] (11) Since it is not necessary to recognize all loci, such as a pen at the time of an input, compared with the case of general "handwriting input", input speed can be improved and the input of long duration is attained quickly.
[0105] (12) In each keys 21-32, since the bottom and a figure are classified with left-hand side and the notation is classified with the bottom, each alphabetic character, a figure, and the array and physical relationship of an alphabetic character (alphabet) of a notation are intelligible, and can improve operability more.
[0106] (13) Since the alphabet used for a Roman alphabet input is mostly arranged in the order of the Japanese syllabary like "A, I, --O", and "K, S, T, N", operability can be improved that it is easy to grasp Key Caps. [--] Furthermore, since the dulness of a consonant is arranged next to [which inputs the Kiyone] an alphabetic character, Key Caps can be made easier to memorize.
[0107] (14) Since a vowel with high frequency is arranged independently to each keys 21-25 and there is Kiyone, a consonant, at the beginning of each keys 26-32 (lower left side), each of these alphabetic characters can be inputted by one tap actuation, and the part and input effectiveness can be improved. Since it is arranged so that the low consonant and the dulness of frequency may moreover be inputted by 2 - 3 times of taps, in the usual text input, the count of a tap does not increase so much and input effectiveness can be improved. Furthermore, since such consonants and dulness can also be inputted by one bar touch actuation, input effectiveness can be improved more.
[0108] (15) Since bar touch actuation in which the alphabet, a figure, and a notation can be inputted is set up regardless of input mode, when the alphabet, a figure, a notation, etc. are intermingled especially, input operability can be improved further.
[0109] The [2nd operation gestalt] The 2nd operation gestalt which starts this invention next is explained with reference to drawing 9 -10. in addition, the same or, same sign as a considerable component as said 1st operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.
[0110] The touch type key input equipment of the 2nd operation gestalt is the same as that of the touch type key input equipment 1 of said 1st operation gestalt, and abbreviation, is equipped with the body 2 with which the liquid crystal screen 3 and the pad-like touch input detection area 4 are established in the front face, and the keyboard sheet 5 used sticking on the touch input detection area 4, and is constituted. In addition, the keyboard sheet 5 serves as the same Key Caps as the 1st operation gestalt. Moreover, it has the touch type input means 71, the input distinction means 72, and the alphabetic character selection output means 73 like said 1st operation gestalt as an internal configuration which realizes this touch type key input equipment. In addition, in the approach of distinguishing the difference in the bar touch alter operation in the input distinction means 72, it differs from said 1st operation gestalt.
[0111] Also in the 2nd operation gestalt, when specific input mode is chosen from the four same input modes ("kana mode", "alphabet mode", "figure mode", "symbolic mode") as the above-mentioned, the

pin touch input which distinguishes and inputs the count by which pin touch actuation was carried out according to each input mode like the above-mentioned is adopted. Since more detailed actuation is the same as that of said 1st operation gestalt, explanation is omitted.

[0112] On the other hand, when the case where especially input mode is not chosen, and each mode are chosen, the input by the above bar touch actuation is also possible. As shown in drawing 9 , after specifically touching the tip of a pen at each letter keys 21-32 Bar touch actuation to which it is made to move by predetermined die length, touched in the direction of either of four directions each (above [102], the left 104, the right 105, down [107]) is performed. The 4 direction bar touch input whose input distinction means 72 distinguishes and inputs the count of bar touch actuation to the migration direction 102,104,105,107 by the bar touch actuation and each migration direction is adopted.

[0113] That is, in order to input the alphabet, each alphabetic character written by the lower right is chosen the lower left of each letter keys 21-32, and the bottom, respectively by performing bar touch actuation to down [107] 1 to 3 times. For example, as shown in drawing 10 , it detects that the input distinction means 72 was touched in the letter key 27 with the pen in the case of the letter key 27, and when bar touch actuation is carried out once down [of a letter key 27 / 107], touched from the point which the pen touched, one bar touch actuation by the side of down [the / 107] is distinguished. Then, the alphabetic character selection output means 73 makes sequential selection of the alphabetic character by the side of down [on the keytop corresponding to down / 107 / which is the distinguished migration direction / 107] from left-hand side according to the count of bar touch actuation. For this reason, the alphabetic character of "K" is chosen and it is displayed on the liquid crystal screen 3. When similarly the alphabetic character of "G" is chosen and displayed on down [107] when bar touch actuation is carried out twice, and bar touch actuation is carried out 3 times down [107], the alphabetic character of "F" is chosen and displayed.

[0114] Furthermore, when bar touch actuation is carried out once, a figure "7" is chosen and displayed leftward [104].

[0115] Moreover, as well as the case of ** when the migration direction of bar touch actuation is above [102], according to the count of the bar touch actuation, from the notation on the left-hand side of a keytop, sequential selection is made and it is displayed on down [107].

[0116] In addition, although bar touch actuation to the right 105 is not usually performed, when alphabet input mode, Japanese input mode, etc. are chosen and the alphabet is inputted in a pin touch input, bar touch actuation of the right 105 may be used together. for example, when "alphabet mode" is chosen and pin touch actuation is carried out When the alphabet of most left-hand side (lower left side) is chosen and displayed among the alphabet displayed on the keytop bottom and bar touch actuation to down [107] is carried out When the 2nd alphabet (below) is chosen from left-hand side among the alphabet displayed on the keytop bottom, and it is displayed and bar touch actuation to the right 105 is carried out You may constitute so that the 3rd alphabet (lower right side) may be chosen and displayed from left-hand side among the alphabet displayed on the keytop bottom. According to such an alphabet input, since the 2nd and the 3rd alphabet can also be inputted by one bar touch actuation from left-hand side, input operability can be improved more. In addition, when bar touch actuation is carried out leftward [104] on this occasion, the figure displayed on keytop left-hand side is chosen and displayed, and when [above / 102] bar touch actuation is carried out, the notation according to the count of that bar touch actuation is chosen and displayed further as mentioned above.

[0117] Moreover, although the alphabet for the Roman alphabet input of Japanese displayed on the keytop bottom according to the count of pin touch actuation is chosen and displayed when "kana mode" is chosen and a pin touch input is carried out When the figure displayed on keytop left-hand side is chosen and displayed leftward [104] when a bar touch input is carried out, and bar touch actuation is carried out above [102] When the notation according to the count of the bar touch actuation is chosen and displayed and bar touch actuation is carried out down [107], the capital letter of the alphabet for an English input according to the count of the bar touch actuation is chosen and displayed.

[0118] Although the figure displayed on keytop left-hand side is chosen and displayed when "figure mode" is chosen and a pin touch input is carried out Also when the notation corresponding to the count

of the bar touch actuation when bar touch actuation was carried out above [102] is chosen and displayed and bar touch actuation is carried out down [107], the alphabet according to the count of the bar touch actuation is chosen and displayed. In addition, also when "symbolic mode" is chosen, it is good as similarly possible in a bar touch input, and in this symbolic mode, since possibility of inputting other alphabetic characters is small, it is good also as possible only in the input of the notation by the pin touch input.

[0119] According to the above **** 2 operation gestalten, in addition to the effectiveness of (1) - (6) and (10) - of said 1st operation gestalt (15), there is the following effectiveness.

(16) Since the direction which can be distinguished was made into the four directions of above [102], the left 104, the right 105, and down [107] and spacing of each direction becomes respectively equal, the incorrect decision by the input distinction means 72 can be decreased.

[0120] (17) The bar touch actuation to each migration direction 102,104,105,107 can be distinguished in the area which quadrisected the keytop field of each letter keys 21-32, since the comparatively large range which can be distinguished can be taken compared with the case where it sets up in the eight directions, gap of the migration direction for every operator etc. can be absorbed, the migration direction can be recognized certainly, and input operability can be improved.

[0121] (18) Since it enabled it to choose the alphabet which occurs frequently most in a text also by bar touch actuation to down [107] and the right 105, compared with the case where it sets only to down [107], input speed is raised and operability can be improved.

[0122] The [3rd operation gestalt] The 3rd operation gestalt which starts this invention next is explained with reference to drawing 11 -24. in addition, the same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple. As shown in drawing 11 , the touch type key input equipment 11 of the 3rd operation gestalt concerning this invention is a Personal Digital Assistant (PDA), is equipped with the body 12 with which the liquid crystal screen 13 is established in the front face, and is constituted.

[0123] The pen used as a touch type input means is attached to touch type key input equipment 11 like said each operation gestalt. An alphabetic character etc. is displayed on the liquid crystal screen 13 like the above-mentioned liquid crystal screen 3, and the software keyboard 15 as a softkey is further displayed on it. Moreover, the liquid crystal screen 13 is set up so that the whole screen may function as the above-mentioned touch input detection area 4.

[0124] That is, with the 3rd operation gestalt, the point of using the software keyboard 15 displayed on the liquid crystal screen 13 is different to having used the keyboard sheet 5 with a 1st and 2 operation gestalt. Moreover, it is different also in that the compaction input (shortcut input) for raising Japanese input effectiveness is newly applied so that it may mention later.

[0125] A software keyboard 15 has the letter key and function key of the same number as said keyboard sheet 5, and the same configuration. In addition, the same sign as the key of the location corresponding to each keys 21-32 on the keyboard sheet 5 and the location of 51-65 is attached and explained.

[0126] As shown also in drawing 12 , the alphabet, a figure, etc. are displayed as follows as a kana mode array, and are set as each keys 21-32, and 51-65, and a Japanese Roman alphabet input is possible. The alphabetic character (alphabet and "**") of the keytop bottom in the standard array (Japanese-English combination) of each of said operation gestalt is set to those keytop bottoms by each letter keys 21-32, and the figure and notation on the left-hand side of a keytop in a standard array (Japanese-English combination) are set to them at the keytop upper right side. furthermore -- letter keys 21-23 -- a keytop lower right side -- respectively -- "-" -- "-- ". -- " -- it is set up.

[0127] On the other hand, the various functions used at the time of a change and alphabetic character input of input mode are set to function keys 51-65 like said each operation gestalt. In addition, also in this operation gestalt, it has four input modes, "kana mode", "alphabet mode", "figure mode", and "symbolic mode", as input mode like said each operation gestalt. However, since it is the software keyboard 15 as which each keys 21-32, and 51-65 are displayed on the liquid crystal screen 13 unlike said each operation gestalt, whenever it changes to each input mode, as each letter keys 21-32 and a function key 62 are shown in drawing 13 - drawing 15 , it changes to the alphabetic character (the

alphabet, a figure, notation) of the class corresponding to each input mode, and is displayed, and the function to correspond is set up.

[0128] On the other hand, as a function which changes input mode, it is displayed on the front face as a "figure" by function keys 53-55, and the function which changes input mode to the "figure mode" for a figure input is set to them. It is displayed on the front face as "aA" by the function key 54, and the function which changes input mode to "lowercase letter mode" or "upper case letter mode" while changing to "alphabet mode" is set to it. It is displayed on the front face as a "notation" by the function key 55, and the function which changes input mode to the "symbolic mode" for symbol inputs is set to it. While it is displayed on the front face as "** A" by the function key 56 and it changes input mode to "kana mode", the function which changes the "kana mode" to "hiragana mode" or "katakana mode" is also set to it.

[0129] On the other hand, as a function key of assisting the edit at the time of other alphabetic character inputs, it is displayed on the front face as "half width" by the function key 51, and the function which changes "full width" and "half width", such as the alphabet, and a figure, a notation, is set to it. The function of the above-mentioned tab key is set to the function key 52. In addition to the function to input a tooth space, the function to change an input-statement character into the kanji etc. is set to the function key 57. The function of a back space key is set to the function key 58 like the standard array (Japanese-English combination) of each of said operation gestalt. It is displayed on the front face as "Esc" by the function key 59, and, in the case of "kana mode", the function of the escape key which eliminates all the alphabetic characters before conversion is set up with ** returned to the last input state.

[0130] While being displayed on the front face as "<-" and moving a cursor location to the left, the function of the cursor movement key which moves the clause break under conversion to the left is set to the function key 60. While being displayed on the front face as "->" and moving a cursor location to the right, the function of the cursor movement key which moves the clause break under conversion to the right is set to the function key 61.

[0131] It is displayed on the front face as a "small letter" by the function key 62, and the function in which the small letter of 1 character can be inputted is set to it in "kana mode." In addition, the function in which the function of the above-mentioned Shift-key is set up in an alphabet mode array, and a function key 62 returns at front input mode when it is a figure mode array and a symbolic mode array is set up.

[0132] The function of the above-mentioned pause repeat key is set to the function key 63. The notation illustrating an arrow head is displayed on the front face by the function key 64, and the function a new line for is started after decision of an undecided alphabetic character or decision is set to it. The function which is displayed on the front face as "Fn", and displays the command array mentioned later is set to the function key 65.

[0133] In addition, in this operation gestalt, although the array and setup of function keys 51-65 shall be differed from the thing of said 1st and 2nd operation gestalt, it is good also as the same array as said each operation gestalt, and a setup.

[0134] The internal configuration of touch type key input equipment 11 is equipped with the touch type input means 71, the input distinction means 72, and the alphabetic character selection output means 73 like said each operation gestalt. As an approach of distinguishing the difference in touch alter operation, both actuation of the above-mentioned bar touch actuation same with said each operation gestalt and pin touch actuation is adopted.

[0135] A maximum of four kinds of alphabetic characters are set to each letter keys 21-32, and those alphabetic characters are displayed on a bottom and lower right side an upper right [of a keytop], and lower left side. And it is set up so that the relative position of each alphabetic character displayed on the keytop and the four directions (the direction 103 of the upper right, the direction 106 of the lower left, down [107], the direction 108 of the lower right) of as a migration direction later mentioned in the case of a bar touch input may correspond, and according to each migration direction, the alphabetic character by the side of the migration direction is inputted.

[0136] In addition, the input distinction means 72 functions like the 1st operation gestalt and

abbreviation except the migration directions which can be distinguished being the four aforementioned directions 103,106-108. Moreover, the alphabetic character selection output means 73 functions as the 1st operation gestalt similarly, chooses the alphabetic character by the side of the migration direction 103,106-108 in the case of the bar touch input in the keytop of each letter keys 21-32, and displays it on the liquid crystal screen 3.

[0137] On the other hand, in the case of a pin touch input, by the completely same actuation as said each operation gestalt, the count of pin touch actuation is distinguished, the alphabetic character selection output means 73 chooses the alphabetic character corresponding to the distinguished result, and the input distinction means 72 displays on the liquid crystal screen 13.

[0138] Therefore, in case a touch input (a bar touch input, pin touch input) is carried out, said alter operation is suitably performed to the alphabetic character which chose input mode first, and was continuously displayed on each letter keys 21-32. Thus, the alphabetic character is displayed on the liquid crystal screen 13.

[0139] If the Roman alphabet input of Japanese by pin touch actuation is explained, in inputting the alphabetic character of Kiyone, such as "****", here in a kana mode array as typically shown in drawing 16 , for example, pin touch actuation of the letter key 27 is carried out once, and pin touch actuation of the letter keys 21-25 which show a vowel continuously is carried out once, and it inputs an alphabetic character by total of two pin touch actuation.

[0140] moreover -- the time of carrying out the pin touch input of each dulness of "****, ****, snaking, and ****" using "G", "Z", "D", and "B" -- letter-key 27- after carrying out pin touch actuation of 29 and 31 twice, pin touch actuation of the letter keys 21-25 which show a vowel is carried out once, and a total of three pin touch actuation is needed. In addition, such alter operation is the same also in said each operation gestalt. Moreover, each alphabetic character of "a Wa line and a Ma line" using "W" and "M" as well as the case of this dulness is operated, and is inputted.

[0141] For this reason, the auxiliary array for considering the alphabetic character of a dulness frail line and a Ma line as two pin touch actuation (compaction input) as well as other alphabetic characters etc. is also set up. Although it is not specifically displayed on each letter keys 22, 26-32 as shown in drawing 17 and drawing 18 , the virtual vowel for a vowel input "a", "i", "u", "e", "o", the virtual long vowel "UU" that decreases the time and effort of a vowel input, "OU", "uu", and "ou" are set up as an auxiliary array.

[0142] that is, letter-key 27- to which the consonant for a dulness input "G", "Z", "D", and "B" were set -- the consonant "W" which shows 29, 31, and a Wa line -- and one letter-key 26- of the letter keys 26 and 32 to which the consonant "M" which shows a Ma line was set -- with 29 and 31 When five letter keys 27-31 to which a virtual vowel "a", "i", "u", "e", and "o" were set are inputted continuously The alphabetic character of the dulness frail line and Ma line which are shown in a continuation input with the consonant "G", "Z", "D", "B", "W", "M", a virtual vowel "a" and "i", "u", "e", and "o" is inputted.

[0143] in addition -- "-- ", "**", "**", and "**" -- letter-key 27- with same consonant and virtual vowel -- since it is set as 29 and 31, it cannot input using such a virtual vowel. For this reason, "x" (substitute key) which acts for a virtual vowel is set to the letter key 32. concrete -- "-- the letter key 32 which is a substitute key as a substitute of the letter key 27 to which the virtual vowel "a" is set after touching the keys of a letter key 27, in inputting " -- touching the keys -- "-- " is inputted.

[0144] Moreover, when the letter keys 27-32 which show a consonant, the letter key 26 as which "Y" was displayed, and the virtual long vowel keys 22, 26, 28, and 32 are inputted continuously, the long vowel containing a contracted sound is inputted. Under the present circumstances, a virtual long vowel "UU" and "OU" are used when inputting Kiyone, the consonant the keys of are touched first, it is a thing, and a virtual long vowel "uu" and "ou" are used when inputting the dulness of a consonant which touches the keys first. For this reason, it uses properly into which the consonant the keys of were touched first shall be made between Kiyone or dulness by which [with the virtual long vowel "UU" of a capital letter, "OU", the virtual long vowel "uu" of a small letter, and "ou"] is chosen.

[0145] Here, such a virtual vowel, a virtual long vowel, etc. are used for drawing 19 , and the example of the compaction input which inputs a kana alphabetic character is shown in it. for example, "it seeing

and intention" and "** being written" as an example of the alphabetic character of a Ma line and a Wa line, -- it is "**** as an example of dulness and a p-sound -- it is -- " -- "********", and "********" as an example of vowel vicarious execution and "cancer ****" -- The compaction input of "****** hail" and "**********" as "********" as an example of the dulness of a contracted sound and a prolonged sound of "pure" and a contracted sound is carried out by alter operation as shown in drawing. In addition, also in said 1st operation gestalt and the 2nd operation gestalt, the auxiliary array function (compaction input function) in which such "a prolonged sound of a Ma line, a Wa line, dulness, a p-sound, and a contracted sound" etc. can be inputted by little actuation may be set up.

[0146] When the above alter operation is summarized, the alter operation of 50 sounds and the alter operation of a contracted sound are shown like drawing 20 and 21. Moreover, in the example of an input of a short sentence shown in drawing 22 , it is adopting a compaction input etc. in this operation gestalt to 47 alter operation being required in a personal computer, and it can input by 46 alter operation and the count of alter operation can be lessened. Therefore, compared with a personal computer, the count of alter operation can be lessened by using bar touch alter operation, pin touch alter operation, compaction alter operation, etc.

[0147] In addition, the array which sets an alphabetic character as alphabetical orders used in the common portable telephone as shown in drawing 23 , such as "ABC" and "DEF", in addition to the above arrays (a kana mode array, an alphabet mode array, a figure mode array, symbolic mode array) can be used for a software keyboard 15. Moreover, it is good also as a command array equipped with each keys 21-32 which have a command function as shown in drawing 24 .

[0148] Even when it changes into an array like such drawing 23 and drawing 24 , the input of an alphabetic character and the output to the liquid crystal screen 3 are attained in the same touch input (a bar touch input, pin touch input) as the above-mentioned by changing suitably a setup of the input distinction means 72 and the alphabetic character selection output means 73.

[0149] According to the above **** 3 operation gestalten, in addition to the effectiveness of (1) - (5), (8), and (10) - of said 1st operation gestalt (15), there is the following effectiveness.

(19) Since each keys 21-32 of a software keyboard 15, and 51-65 are displayed on the liquid crystal screen 13, when you do not need a software keyboard 15, it can use the liquid crystal screen 13 whole widely by not displaying this software keyboard 15. In case the homepage of the Internet, an image, a table, etc. are seen especially, the range displayed at once becomes large and there is an advantage of being legible.

[0150] (20) Since what is necessary is just to set about four kinds of comparatively few alphabetic characters to each letter keys 21-32 since the array of the alphabetic character (the alphabet, a figure, notation) displayed on each letter keys 21-32 can be changed in accordance with the class of alphabetic character to input, the viewing area of the software keyboard 15 in the liquid crystal screen 13 can be narrowed. Therefore, viewing areas, such as an image of the liquid crystal screen 13 and a table, can be made large, and an image etc. is legible.

[0151] (21) Since the auxiliary array was set as each letter keys 26-32, the time and effort of pin touch inputs, such as dulness and a contracted sound, can be decreased, input speed is raised, and input operability can be improved.

[0152] The [4th operation gestalt], next the 4th operation gestalt concerning this invention are explained with reference to drawing 25 -37. Although the alter operation with the as fundamental 4th operation gestalt as said 1st operation gestalt is the same, it is different in that it enables it to input an alphabetic character with high frequency easily in Japanese, English, etc. with devising bar touch actuation. Moreover, the same compaction input at the time of a pin touch input as the 3rd operation gestalt is also adopted. in addition, the same or, same sign as a considerable component as said 1st operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.

[0153] The touch type key input equipment of the 4th operation gestalt is equipped with the body 2 with which the liquid crystal screen 3 and the touch input detection area 4 are formed, and keyboard sheet 5A used sticking on the touch input detection area 4 like the touch type key input equipment 1 of said 1st operation gestalt.

[0154] As compared with the keyboard sheet 5 (refer to drawing 2) of said 1st operation gestalt, as for this keyboard sheet 5A, a part of Key Caps is different. Furthermore, on keyboard sheet 5A, it is different also at the point set up so that the new character string which is not displayed can be inputted using bar touch actuation.
[0155] Although the most of Key Caps of keyboard sheet 5A is specifically the same as that of the keyboard sheet 5 of said 1st operation gestalt as shown in drawing 25 , only the array of the notation of the keytop top of letter keys 27 and 31 is different. that is, "-+_" sets to the keytop bottom of a letter key 27 from the left-hand side -- having -- the keytop top of a letter key 31 -- from the left-hand side -- "-- = -" are set up.
[0156] On the other hand, the internal configuration of this touch type key input equipment as well as said 1st operation gestalt is equipped with the touch type input means 71, the input distinction means 72, and the alphabetic character selection output means 73 (refer to drawing 3). Moreover, the bar touch input and pin touch input to eight directions with a pen are adopted like [the alphabetic character input approach] said 1st operation gestalt.
[0157] The pin touch input is the same as said 1st operation gestalt, after changing to each input mode, according to input mode, the alphabet, a figure, and a notation will be chosen according to the count of a touch (count of a tap), and each letter keys 21-32 will be outputted, if a pin touch input is carried out 1 to 3 times.
[0158] Moreover, if it is carried out to the ability of a pin touch input and a bar touch input to be used together and the bar touch input to eight directions is performed like said 1st operation gestalt, as shown in drawing 26 , according to the migration directions 101-108 of a pen, the alphabetic character displayed on the migration direction side of each letter keys 21-32 will be inputted in principle. However, although the bar touch input of the right 108 was set as the figure input with said 1st operation gestalt, the figure input is considered only as the bar touch input of the left 104 with this operation gestalt.
[0159] In letter keys 21-32, a new character string as shown by parenthesis writing of drawing 26 is set up, and although these character strings are not displayed on a keytop, the input of them is enabled by the bar touch actuation to each direction in drawing 26 . In addition, such a new character string prepares the table which registers the alphabetic character corresponding to a key stroke into the alphabetic character selection output means 73, and should just register it into this table. Although what is necessary is just to perform initial setting of this registration by the manufacturer side, a user may enable it to set it up freely by the user's registration function.
[0160] "**" and "**" which occur frequently at the second-sound turning point of the Japanese phonetic reading kanji with this operation gestalt here -- "-- it is -- " -- "-- obtaining -- " -- "**" -- "-- coming -- " -- it has set up so that a "**", "**", etc. can be inputted by easy actuation.
[0161] As shown also in drawing 27 , specifically by the letter keys 21-25 to which the vowel was set, as for the alphabet, the vowel "A, I, U, E, O" is set up according to the individual. For this reason, the bar touch input of down [107] and the direction 108 of the lower right is not used among the direction 106 of the lower left for inputting the alphabet in other letter keys 26-32 (the 1st bar touch input direction), down [107] (the 2nd bar touch input direction), and the direction 108 of the lower right (the 3rd bar touch input direction). Moreover, the bar touch input of the right 105 is not used with this operation gestalt. Furthermore, in a Japanese input, the notation set as the upper right of the vowel keys 21-25 has very low frequency.
[0162] Therefore, in Japanese (kana) input mode, in these letter keys 21-25, if the bar touch input of down [which is a direction where the alphabetic character is not displayed / 107], the direction 108 of the lower right, the right 105, and the direction 103 of the upper right where the notation with low frequency was set up is performed, it is set up so that a vowel geminated consonant character string, a vowel syllabic nasal character string, a compound vowel character string, and a contracted sound character string may be inputted, respectively.
[0163] If bar touch actuation is carried out by letter keys 21-25 down [107], specifically, the vowel geminated consonant character string "a **" into which a geminated consonant "**" is inputted

following the alphabet "A, I, U, E, O" set as each letter keys 21-25, "i **", "u **", "e **", and "o **" will be chosen, respectively. Moreover, if bar touch actuation is carried out, the vowel syllabic nasal character string "a **" into which a syllabic nasal "**" is inputted following the alphabet "A, I, U, E, O" set as each letter keys 21-25, "i **", "u **", "e **", and "o **" will be swerved and it-chosen in the direction 108 of the lower right.

[0164] Moreover, in letter keys 21-25, it is set up rightward [105] so that a compound vowel may be inputted, if bar touch actuation is carried out, and by the letter key 21, ", for ai", at a letter key 22, "ui" is "uu in a letter key 23" is set up so that "ei" may be inputted in a letter key 24 and "ou" may be inputted in a letter key 25.

[0165] Furthermore, in letter keys 21-25, it is set up in the direction 103 of the upper right so that a contracted sound may be inputted, if bar touch actuation is carried out, and by the letter key 21, "ya" is "yu at a letter key 23" is set up so that "ye" may be inputted in a letter key 24 and "yo" may be inputted in a letter key 25. In addition, instead of these notations, although the notation is written, respectively, since these notations are hardly used in a Japanese input, in the Japanese bar touch input, it is set to the upper right side of the keytop of each letter keys 21-25 so that the above-mentioned contracted sound may be inputted. However, in the letter key 22, since the input "yi" is unnecessary when bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that the notation """ written at the upper right side of a keytop may be inputted as it is.

[0166] in addition -- the time of Japanese input mode -- each -- the key 60 for [since Japanese is not decided if the alphabet of a consonant is independent, after choosing a consonant by a pin touch or bar touch actuation] breaks, and other consonants -- a key can be inputted by carrying out touch actuation. even when the vowel alphabet is independent on the other hand -- Japanese "** -- it is -- obtaining -- obtaining -- " -- ****** -- since it is decided, the mode must be changed and inputted or inverse transformation must be carried out to the alphabet. With this operation gestalt, for this reason, the vowel in a Roman alphabet input If it enables it to input each letter keys 21-25 by carrying out pin touch actuation once and bar touch actuation of these letter keys 21-25 is carried out in the direction 106 of the lower left Japanese in which it is decided as the alphabet, the alphabet (English vowel) "A, I, U, E, O" which shows a vowel is made to be inputted, and the alphabet is intermingled by this can also be inputted easily.

[0167] moreover -- if the bar touch input of the right 105 where the alphabetic character is not displayed, and the direction 103 of the upper right where the notation with low frequency is set up in Japanese is performed also in letter keys 26-32 in Japanese (kana) input mode -- the prolonged sound of a contracted sound -- "-- it ** and comes, and it is set up so that ** of **, **, and ** **, **", and a notation "#,;, -, ?" may be inputted, respectively.

[0168] As shown in the column of "others" in each letter keys 26-32, when "YOU" for inputting the prolonged sound of a contracted sound is inputted in a letter key 26 when bar touch actuation is carried out rightward [105] and bar touch actuation is specifically carried out in the direction 103 of the upper right in drawing 28 , it is set up so that "YUU" may be inputted.

[0169] moreover -- the case where "**" was inputted in the letter key 27 when bar touch actuation was carried out rightward [105], and bar touch actuation is carried out in the direction 103 of the upper right -- "-- coming -- " -- it is set up so that it may be inputted. Furthermore, in the letter key 29, when bar touch actuation is carried out rightward [105], a "**" is inputted, and when bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that "**" may be inputted.

[0170] In the letter key 28, when "**" which occurs frequently by the Japanese document also in the alphabetic character of a Sa line is inputted when bar touch actuation is carried out rightward [105], and bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that the notation "#" written at the upper right side of a keytop may be inputted.

[0171] In the letter key 30, when "**" which occurs frequently by the Japanese document also in the alphabetic character of a line is inputted when bar touch actuation is carried out rightward [105], and bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that the notation";" written at the upper right side of a keytop may be inputted.

[0172] In the letter key 31, when "**" which occurs frequently by the Japanese document also in the alphabetic character of a limping gait is inputted when bar touch actuation is carried out rightward [105], and bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that the notation "-" written at the upper right side of a keytop may be inputted.
[0173] In the letter key 32, when "**" which occurs frequently by the Japanese document also in the alphabetic character of **** is inputted when bar touch actuation is carried out rightward [105], and bar touch actuation is carried out in the direction 103 of the upper right, it is set up so that the notation "?" written at the upper right side of a keytop may be inputted.
[0174] The example of an input at the time of shortening and inputting a kana alphabetic character by the above bar touch actuation is shown in drawing 29 . For example, a tail "is general", [being "accounting" as an example of the kanji which becomes a geminated consonant "**" and a syllabic nasal "**", and] "Decision" and a tail A compound vowel "AI", "UI", "UU", "EI", The "economy" as an example of the kanji set to "OU", "presumption", "a report", and a tail The alphabetic character of Kiyone "**", "-- coming -- " -- the "driver" as an example of the kanji, the "friendship", and "a demand" from which the "purpose", "certain" and a "touch" as an example of the kanji which becomes a "**" and "**", and a tail are set to a contracted sound "YA", "YU", "YO", "YUU", and "YOU" be shown in drawing and compaction input be made and carried out. In addition, in drawing 29 , each arrow head expresses a bar touch input and its direction. Moreover, in carrying out a bar touch input to "E-mail spreading the present subject" as an example of compaction inputs, such as kana with high frequency, and a Ma line, it is inputted by bar touch actuation as shown in drawing 30 , and even if compared with the usual keyboard entry, it can lessen the number of touch inputs very much.
[0175] When the bar touch alter operation of above Japanese is summarized, the alter operation of 50 sounds and the alter operation of a contracted sound are shown like drawing 31 and 32.
[0176] Moreover, the compaction input at the time of a pin touch input as well as said 3rd operation gestalt is set to this operation gestalt. That is, although it is not displayed on each letter keys 27-32 by the keytop as shown in drawing 33 , the substitute "x" which sets the substitute of a virtual vowel to the virtual vowel for a vowel input "a", "i", "u", "e", and "o" as an auxiliary array is set up. It enables it to also use together the compaction input of this pin touch input with said pin touch input and a bar touch input.
[0177] namely, -- each -- a consonant -- in keys 26-29, and 31 and 32, "M, W, G, Z, D, B" which are inputted twice by pin touch After carrying out the tap of those keys 26-29, and 31 and 32 once, each alphabetic character of "a Ma line, a Wa line", and dulness "****, ****, snaking, and ****" can be inputted by total of carrying out the tap of the letter keys 27-31 or the substitute key 32 to which the virtual vowel was set, i.e., two pin touch actuation. If the tap of the virtual vowel keys 27-32 is similarly carried out once for a key 31 after a 2 times tap, each alphabetic character of a p-sound "****" can be inputted.
[0178] Such a virtual vowel is used for drawing 34 , and the example of the compaction input which inputs a kana alphabetic character is shown in it. for example, "it seeing and intention" and "** being written" as an example of the alphabetic character of a Ma line and a Wa line, and "wooden-clogs ****" as an example of dulness and a p-sound -- "-- it can do -- ** -- " -- the compaction input of "********" and "********" as an example of vowel vicarious execution is carried out by alter operation as shown in drawing.
[0179] Moreover, in the example of an input of a short sentence shown in drawing 35 , in a personal computer, it can input by 54 alter operation in this operation gestalt to 62 alter operation being required, and the count of alter operation can be lessened. Therefore, compared with a personal computer, the count of alter operation can be lessened by using bar touch alter operation, pin touch alter operation, compaction alter operation, etc.
[0180] In addition, the alphabetic character inputted by the bar touch input to the direction where the alphabetic character is not displayed at the time of alphabet input mode may be set up. For example, as shown in drawing 36 and 37, when each bar touch actuation is performed in alphabet input mode, it may set up so that a word with high frequency etc. may be inputted, and input effectiveness may be raised.

[0181] That is, it is inputted by one pin touch actuation or bar touch actuation to the direction 106 of the lower left to input the alphabet of one character by letter keys 21-25. On the other hand, as shown in the column of "a bar touch" in each letter keys 21-25 of drawing 36 When bar touch actuation is carried out to down [107], in a letter key 21 "an" When bar touch actuation is carried out in the direction 108 of the lower right and "as" carries out bar touch actuation rightward [105], it is set up so that "at" may be inputted, and the preposition which makes an initial the alphabetic character of "A" written on the keytop is set up.
[0182] Moreover, in the letter key 22, by down [107], "is" is set up so that "in" may be inputted in the direction 108 of the lower right and "it" may be inputted in the right 105, and the word which makes an initial the alphabetic character of "I" written on the keytop is set up.
[0183] Furthermore, in the letter key 23, by down [107], "up" is set up so that "us" may be inputted in the direction 108 of the lower right and "ul" may be inputted in the right 105, and the character string which is related to the notation alphabetic character on a keytop "U" similarly is set up. In a letter key 24 in down [107], "ea" in the direction 108 of the lower right moreover, "er" Are set up so that "es" may be inputted in the right 105, and it sets to a letter key 25. In down [107], "on" is set up so that "of" may be inputted in the direction 108 of the lower right and "off" may be inputted in the right 105, and the character string which is related to the notation alphabetic character on a keytop "E" and "O" like the above-mentioned is set up.
[0184] On the other hand, in the bar touch input of the alphabet in letter keys 26-32, as shown in drawing 37 , when bar touch actuation is carried out in the direction 106 of the lower left, down [107], and the direction 108 of the lower right, it is set up as the principle, so that the alphabetic character written on each keytop may be inputted, respectively.
[0185] However, in each letter keys 26-32, when bar touch actuation is carried out rightward [105], it is set up so that a new character string may be inputted. "you", "for", "so", "to", "no", "he", and "me" are set to letter keys 26-32, respectively, and, specifically, the character string which makes an initial the alphabet written on the keytop is set to them.
[0186] As mentioned above, although the character string which occurs frequently in the case of Japanese or an English input was set as the part which is not mainly written on the keytop For example, even when using for the alphabetic character input of the language of others, such as French, and German, Italian, Russian, only by setting up beforehand the character string which occurs frequently in each language, like the case of above-mentioned Japanese and English, a compaction input is performed and the count of a key stroke can be decreased. For this reason, to compensate for each language, it can consider as the keyboard system of a cosmopolitan only by changing a setup. In addition, the character string which occurs frequently in each language, and the character string which a user uses most frequently can also be set up, and, in such a case, a feeling of use can be improved further.
[0187] According to the above **** 4 operation gestalten, in addition to the effectiveness of (1) - (8) and (10) - of each of said operation gestalt (15), (17), (18), and (21), there is the following effectiveness.

(22) Since a word, a character string, etc. which are used frequently were set as the keytop in Japanese or English as a character string new in the direction by which an alphabetic character notation is not carried out, the count of a touch of the letter keys 21-32 at the time of an input can be decreased, and input operability can be improved.
[0188] (23) To the letter keys 21-25 to which the vowel was set by carrying out bar touch actuation down [107], the direction 108 of the lower right, and rightward [105] "**" and "**" which occur frequently by the 2 syllable eye of a Japanese idiom -- "-- it is -- " -- "-- obtaining -- " -- etc. -- since it is inputted after after the alphabet which shows the vowel with the alphabet which shows a vowel -- an idiom -- getting it blocked -- the count of a touch of the letter keys 21-32 at the time of a Japanese input can be lessened, and input operability can be improved. moreover, "**" which carries out frequent in Japanese to the letter keys 26-32 to which the consonant was set by carrying out bar touch actuation in the right 105 and the direction 103 of the upper right -- "-- coming -- " -- since a "**", "**", "**", "**", "**", "**", etc. can be inputted by one bar touch actuation, input operability can be improved.

[0189] (24) Since the contracted sound and compound vowel which require at least two key stroke actuation or more were set up as a character string, these character strings can be inputted by one stroke actuation, the count of a touch of the letter keys 21-32 at the time of a Japanese input can be lessened, and input operability can be improved.
[0190] (25) Since the alphabetic character displayed on the keytop and the character string with relation were set up as an alphabetic character inputted in the direction in which character representation is not carried out to a keytop by bar touch actuation, even if not displayed on a keytop, the letter keys 21-32 to which the character string was set can be memorized easily, and input operability can be improved.
[0191] (26) Since the system which inputs the alphabetic character which is not displayed on a keytop formed, since the alphabetic character which displays only the alphabet inputted into the keyboard sheet 5 in common in Japanese or English, a notation, and a figure by printing etc., and is inputted only in Japanese or English can input without displaying, it can also communalize the keyboard sheet 5 for each country to Japanese and an English pan, can lessen the class of sheet 5, and can reduce a production cost.
[0192] Drawing 38 explained with reference to drawing 38 -44 about the [5th operation gestalt], next the 5th operation gestalt concerning this invention is drawing showing the touch type key input equipment 1 of the 5th operation gestalt concerning this invention. As shown in drawing 38 , the touch type key input equipment 1 of this operation gestalt is built into a portable telephone. Touch type key input equipment 1 is equipped with the body 2 with which the liquid crystal screen 3 and the pad-like touch input detection area 4 are established in the front face, and keyboard sheet 5C used sticking on the touch input detection area 4, and is constituted. Moreover, the microphone 6 and loudspeaker 7 for a message are also prepared in the front face of a body 2.
[0193] In addition, it is constituted possible [a display of various information etc.] like [the touch input detection area 4] the liquid crystal screen 3. That is, the touch input detection area 4 is set to some liquid crystal screens 3. Moreover, keyboard sheet 5C is stuck with removable adhesives. For this reason, if keyboard sheet 5C is removed, a portable telephone can display various information on the liquid crystal screen 3 whole including the touch input detection area 4, and is constituted available also as a Personal Digital Assistant (PDA).
[0194] Although not illustrated, the pen used as a touch type input means is attached to touch type key input equipment (portable telephone) 1. For this reason, it is desirable that form the holder holding a pen etc. in the body 2, and it enables it to prevent loss of a pen. And what is necessary is to have a body 2 with the left hand (right hand), or to place on a desk etc., to grasp a pen with the right hand (left hand), and just to operate it, in using touch type key input equipment 1.
[0195] The alphabetic character received through inputted communication lines, such as an alphabetic character and the Internet, other images, etc. are displayed on the liquid crystal screen 3. Touch actuation was made with the above-mentioned pen, and the touch input detection area 4 has detected the pressure of the pen at the time of being the touch actuation etc. In addition, by writing an alphabetic character, a graphic form, etc. in this touch input detection area 4, it is also a setup as which that written-in alphabetic character and graphic form are inputted as it is, for example, a handwritten map etc. can be inputted.
[0196] Keyboard sheet 5C has 12 letter keys 21-32 of 4 steps of vertical right-and-left 3 train, and three function keys 51-53 formed in the letter-keys 21-32 bottom, as shown also in drawing 39 . Each keys 21-32, and 51-53 are the following arrays, and an English input or a Japanese Roman alphabet input is possible for them. In addition, if keyboard sheet 5C is stuck on the touch input detection area 4, the predetermined function corresponding to each and the input of an alphabetic character of each keys 21-32, and 51-53 will be attained.
[0197] In the each letter-keys 21-26 and keytop top (above side to the keytop core which is a criteria location) of 28, 30-32 To the 1st step three letter keys 21-23, sequentially from a left-hand side letter key at a letter key 21 a figure "1" a figure "2" sets it as a letter key 22, and a figure "3" sets it as a letter key 23 -- having -- the 2nd step three letter keys 24-26 -- from left-hand side, a figure "5" is set as a letter key 25, and the figure "6" is set as the letter key 24 for the figure "4" by the letter key 26.

[0198] moreover, a figure "8" sets to the letter key 28 of the 3rd step -- having -- the 4th step three letter keys 30-32 -- from left-hand side, a figure "0" is set as a letter key 31, and the notation "#" is set as the letter key 30 for the notation "*" by the letter key 32. Moreover, as for the letter keys 27 and 29 of the 3rd step, a figure "7" and "9" are set to the upper left side (the direction side of the upper left to a keytop core) of a keytop, respectively.
[0199] furthermore, inside [of 12 letter keys 21-32], and six letter-keys 22- the alphabet of three characters is set at a time as 26 and 28, and the alphabet of four characters is set at a time to letter keys 27 and 29. if it is specifically shown to the keytop core which is a criteria location in order by the side of the direction of the lower left, down, and the direction of the lower right -- a letter key 22 -- "TUV" is set as "DEF" and a letter key 24 by "GHI" and the letter key 25, and is set as "ABC" and a letter key 23 by "JKL" and the letter key 26 at "MNO" and a letter key 28, respectively.
[0200] Moreover, in the letter key 27, to the keytop core, "S" is set to the direction side of the upper right at the "P" and direction side of the lower left, and is set to the "Q" and down side at the "R" and direction side of the lower right. Furthermore, in the letter key 29, to the keytop core, "Z" is set to the direction side of the upper right at the "W" and direction side of the lower left, and is set to the "X" and down side at the "Y" and direction side of the lower right. namely, -- keys 22-29 -- an alphabetical order -- each alphabet -- 3 -- or four characters are set up and displayed at a time.
[0201] Moreover, the "SHIFT" function used for the change of a capital letter or a small letter etc., respectively and the "SPACE" function used for a tooth-space input are set up and displayed on the down side of letter keys 30 and 32.
[0202] On the other hand, each function for telephones, such as dispatch of a telephone, cutting, a hysteresis display, and an input clearance, is set to function keys 51-53.
[0203] Next, the internal configuration which realizes touch type key input equipment 1 is explained with reference to drawing 40 . Drawing 40 is the block diagram of the internal configuration which realizes touch type key input equipment 1. Touch type key input equipment 1 is equipped with the touch type input means 71 which is a pen as above-mentioned, the input distinction means 72, and the alphabetic character selection output means 73, and is constituted.
[0204] When keyboard sheet 5C is stuck on the touch input detection area 4, the input distinction means 72 has recognized each field corresponding to each letter keys 21-32 on the touch input detection area 4, and has detected whether the touch input in each field was carried out with the pen which is the touch type input means 71.
[0205] After touching each letter keys 21-32 with a pen, specifically, the input distinction means 72 is constituted so that the pin touch actuation (tap actuation) touched so that it may not be made to move more than predetermined die length, and the bar touch actuation to which it is made to move more than predetermined die length can be distinguished.
[0206] Furthermore, as the input distinction means 72 is shown in drawing 41 (A) and (B) When bar touch actuation to which it is made to move by predetermined die length, touching the tip of a pen in the direction of either of six directions each (the direction 101 of the upper left, above [102], the direction 103 of the upper right, the direction 106 of the lower left, down [107], the direction 108 of the lower right) after touching each letter keys 21-32 is performed It is constituted so that the migration directions 101-108 by the bar touch actuation can be distinguished.
[0207] namely, each letter-key 22- as which a figure and three kinds of alphabet were displayed -- in 26 and 28, to the keytop center position which is a criteria location, a figure is displayed on the bottom and the alphabet is displayed on the bottom and lower right side the lower left side, respectively. In 26 and 28 for this reason, each letter-key 22- If bar touch actuation is performed to above [102] as shown in drawing 41 (A) A figure is inputted, if bar touch actuation is performed in the direction 106 of the lower left, the alphabet by the side of the lower left (English 1) will be inputted, if bar touch actuation is performed to down [107], the lower alphabet (English 2) will be inputted, and if bar touch actuation is performed in the direction 108 of the lower right, the alphabet by the side of the lower right (English 3) will be inputted.
[0208] On the other hand, in each letter keys 27 and 29 as which a figure and four kinds of alphabet

were displayed, to the keytop center position used as the criteria location of each letter keys 21-32, a figure is displayed on an upper left side and the alphabet is displayed on the bottom, lower right, and upper right side the lower left side, respectively. For this reason, it sets to each letter keys 27 and 29. If bar touch actuation is performed in the direction 101 of the upper left as shown in drawing 41 (B) A figure is inputted, and if bar touch actuation is performed in the direction 106 of the lower left, the alphabet by the side of the lower left (English 1) will be inputted. If bar touch actuation is performed to down [107], the lower alphabet (English 2) will be inputted, if bar touch actuation is performed in the direction 108 of the lower right, the alphabet by the side of the lower right (English 3) will be inputted, and if bar touch actuation is performed in the direction 103 of the upper right, the alphabet by the side of the upper right (English 4) will be inputted.

[0209] In addition, in letter keys 21, 30-32, the figure displayed on the bottom by performing bar touch actuation to above [102] to the keytop center position which is a criteria location of each letter key, a notation "1", "*", "0", and "#" are inputted, respectively.

[0210] As an approach of distinguishing the difference in touch alter operation here As shown in drawing 41 , after touching the tip of a pen at each letter keys 21-32 Bar touch actuation to which it is made to move by predetermined die length, touched in the direction of either of six directions each (the direction 101 of the upper left, above [102], the direction 103 of the upper right, the direction 106 of the lower left, down [107], the direction 108 of the lower right) is performed. The bar touch input whose input distinction means 72 distinguishes and inputs the migration directions 101-108 by the bar touch actuation is adopted.

[0211] As shown in drawing 42 , such a bar touch input from the starting point (A) which touches a letter key 22 first Supposing it moves a pen across the field of a letter key 22, touched like a path 109, it stops the touch with a pen at a terminal point (B) and it separates a pen from keyboard sheet 5C The input distinction means 72 detects the letter key 22 corresponding to the starting point (A), and distinguishes the direction 108 of the lower right which is the direction of the terminal point (B) seen from the starting point (A) as shown in the arrow head 110 in drawing as a migration direction. Under the present circumstances, since that migration direction is distinguished, it is not limited to the path 109 of a touch by the starting point (A) and the terminal point (B). In addition, it can input by the same actuation also as the direction of [other than direction of the lower right 108].

[0212] In addition, the approach of distinguishing the migration direction according to the starting point (A) and a terminal point (B) Although not limited especially, when it sees from the starting point (A) and makes above [102] into the include angle of 0 degree (360 degrees), for example What is necessary is just to distinguish from the direction 108 of the lower right, when the time of seeing from the starting point (A) and being in the include-angle range which is 45 degrees whose terminal points (B) are 22.5 degrees - 337.5 degrees is distinguished from above [102] and it is in the include-angle range of 112.5 degrees - 157.5 degrees. That is, what is necessary is just to distinguish whether it is in include-angle within the limits divided 45 degrees at a time into eight.

[0213] On the other hand, the alphabetic character selection output means 73 chooses the alphabetic character displayed on the migration direction 101-108 side in the case of the bar touch input in the keytop of each letter keys 21-32 based on distinction with the input distinction means 72, and displays the alphabetic character on the liquid crystal screen 3.

[0214] As shown in drawing 43 , supposing it carries out the bar touch input of the letter key 22, first, it detects that the input distinction means 72 was touched in the letter key 22 with the pen, and when it moves to above [of a letter key 22 / 102], touched from the point which the pen touched, the migration by the side of above [the / 102] will more specifically be distinguished. Then, the alphabetic character selection output means 73 chooses the figure on the keytop corresponding to the distinguished migration direction 102 "2", and outputs a figure "2" to the liquid crystal screen 3. When similarly the alphabetic character of "A" is chosen and outputted when it moves in the direction 106 of the lower left, and it moves to down [107], the alphabetic character of "B" is chosen and outputted, and when it moves in the direction 108 of the lower right, the alphabetic character of "C" is chosen and outputted. Thus, a bar touch input is carried out.

[0215] Moreover, as shown in drawing 44 , supposing it carries out the bar touch input of the letter key 29, first, it detects that the input distinction means 72 was touched in the letter key 29 with the pen, and when it moves in the direction 101 of the upper left of a letter key 29, touched from the point which the pen touched, the migration by the side of the direction 101 of the upper left will be distinguished. Then, the alphabetic character selection output means 73 chooses the figure on the keytop corresponding to the distinguished migration direction 101 "9", and outputs a figure "9" to the liquid crystal screen 3. Similarly, when it moves in the direction 103 of the upper right, the alphabetic character of "W" is chosen and outputted, when the alphabetic character of "X" is chosen and outputted when it moves in the direction 106 of the lower left, and it moves to down [107], the alphabetic character of "Y" is chosen and outputted, and when it moves in the direction 108 of the lower right, the alphabetic character of "Z" is chosen and outputted.
[0216] According to the above **** 5 operation gestalten, there is the following effectiveness.
(5-1) The input distinction means 72 distinguishes the migration directions 101-108 at the time of a bar touch input every letter key 21-32, and the alphabetic character selection output means 73 chooses and outputs the alphabetic character displayed on the migration direction 101-108 side in each letter keys 21-32. For this reason, since the alphabetic character in the location corresponding to that migration direction is chosen and outputted at the time of bar touch alter operation among the alphabetic characters displayed on the keytop of each letter keys 21-32, alter operation can be grasped intuitively and easily and input operability can be improved. Furthermore, since the alphabetic character displayed on each letter keys 21-32 can be checked by viewing in the case of alter operation, alter operation can be carried out simply and quickly.
[0217] (5-2) Even if it is 12 pieces and few letter keys 21-32, a total of 38 kinds of alphabetic characters of notations of two characters, such as ten characters of the figures 0-9 for an input of the alphabet of 26 characters used for a Japanese Roman alphabet input and a Japanese English input, various numbers, etc. and "#", can be set as each letter keys 21-32. For this reason, it can be made easier for there to be sufficient operability and to input, since the alphabetic character of a class equivalent to a common keyboard can be inputted.
[0218] (5-3) Since a maximum of five characters were set as one letter keys 21-32, compared with the "softkey input" which it sets one character at a time as one conventional key, the number of letter keys 21-32 can be lessened sharply, and portability can be secured. Furthermore, since the number of letter keys 21-32 can be lessened, each letter keys 21-32 can be enlarged or migration length at the time of actuation can be made small, input operability can be improved. When using for a small pocket device etc. especially, the magnitude of keyboard sheet 5C is also so large, and it cannot do, but since the number of keys can enlarge each key few, a stylus pen etc. can perform touch actuation easily.
[0219] (5-4) Since it set up so that a Japanese input might be carried out by the Roman alphabet input and the class of alphabetic character to set up can be lessened with the alphabet of 26 characters compared with the case of a general kana input, more alphabetic characters, notations, etc. can be set up.

[0220] (5-5) Since each letter keys 21-32 can be enlarged, a user can use certainly the bar touch alter operation to each migration directions 101-108 properly. For this reason, a user can choose an alphabetic character to choose certainly and can improve input operability. Furthermore, if letter keys 21-32 become large, since the distinction range of each migration directions 101-108 by the input distinction means 72 will also spread, the migration directions 101-108 can be distinguished certainly.
[0221] (5-6) Keyboard sheet 5C is stuck on the touch input detection area 4, only carry out a predetermined setup to the input distinction means 72, it can treat like a common keyboard, and an alphabetic character input is easy. Moreover, since keyboard sheet 5C can also be removed easily, a setting change of the input approach is made at a handwriting input if needed to input a handwritten alphabetic character, a handwritten graphic form, etc. That is, the different input approach can be used together.
[0222] (5-7) Since the migration direction which can be distinguished was set to 6 direction 101-103,106-108 and the alphabetic character required for an input was set as each letter keys 21-32, the

alphabet and a figure can be inputted by one bar touch actuation, respectively, without changing input mode. For this reason, input speed is raised and input operability can be improved.
[0223] (5-8) Since the migration direction was made into 6 of the direction 101 of the upper left, above [102], the direction 103 of the upper right, the direction 106 of the lower left, down [107], and the direction 108 of the lower right directions and it becomes respectively equal omitting spacing of each direction, the incorrect decision by the input distinction means 72 can be decreased. Moreover, since each directions 101-108 are also in the actuation when writing an alphabetic character and it is [they are very rhythmical and] easy to input them, they can improve input operability.
[0224] (5-9) Since it is not necessary to recognize all loci, such as a pen at the time of an input, compared with the case of general "handwriting input", input speed can be improved and the input of long duration is attained quickly.
[0225] (5-10) In each keys 21-32, since an alphabetic character (alphabet) is classified with the bottom and the figure is classified with the bottom, the array and physical relationship of each alphabetic character and a figure are intelligible, and can improve operability more.
[0226] (5-11) Since the alphabet used for a Roman alphabet input is arranged in the alphabetical order like "A, B, C, --Z", operability can be improved that it is easy to grasp Key Caps. Especially the array of the figure in each letter keys 21-32 and the alphabet being the same as the array widely used with the portable telephone now or the user of a portable telephone into whom the touch type key input equipment 1 of this invention was built since it was very similar can grasp the array of the alphabetic character easily, and can improve input operability further.
[0227] (5-12) Since bar touch actuation in which the alphabet and a figure can be inputted is set up regardless of input mode, when especially the alphabet and a figure are intermingled, input operability can be improved further.
[0228] The [6th operation gestalt], next the 6th operation gestalt concerning this invention are explained with reference to drawing 45 and 46. in addition, the same or, same sign as a considerable component as said 5th operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.
[0229] As shown in drawing 45 , the touch type key input equipment 11 of the 6th operation gestalt concerning this invention is a Personal Digital Assistant (PDA), is equipped with the body 12 with which the liquid crystal screen 13 is established in the front face, and is constituted.
[0230] The pen used as a touch type input means is attached to touch type key input equipment 11 like said each operation gestalt. An alphabetic character etc. is displayed on the liquid crystal screen 13 like the above-mentioned liquid crystal screen 3, and software keyboard 15B as a softkey is further displayed on it. Moreover, the liquid crystal screen 13 is set up so that the whole screen may function as the above-mentioned touch input detection area.
[0231] That is, with the 2nd operation gestalt, the point of using software keyboard 15B displayed on the liquid crystal screen 13 is different to having used keyboard sheet 5C with the 5th operation gestalt.
[0232] Software keyboard 15B has 15 letter keys 121-135 of 3 steps of vertical right-and-left 5 train. According to the so-called QWERTY array adopted by the common keyboard, each alphabet is set to each letter keys 121-135.
[0233] namely, to the letter keys 121-125 of upper case 1 train The key which inputs "Q", "W", "E", "R", and "T" into the upper left side of each key is set up, respectively. The key which inputs "Y", "U", "I", "O", and "P" into the lower right side of each key is set up, respectively, and the alphabet of the upper case in the common keyboard of a QWERTY array is set up.
[0234] moreover, the middle -- the keys 126-130 of one train -- the upper left side of each key -- "A" -- The key which inputs "S", "D", "F", and "G" is set up, respectively. The key which inputs "H", "J", "K", "L", and "; (semicolon)" into the lower right side of each key is set up, respectively, and the alphabet of the middle in the common keyboard of a QWERTY array and a notation are set up. furthermore, to the keys 131-135 of lower-berth 1 train The key which inputs "Z", "X", "C", "V", and "B" into the upper left side of each key is set up, respectively. the lower right side of each key -- "N" and "M" -- "-- the key which inputs " (comma), ". (period)", and "/(slash)" is set up, respectively, and the alphabet of the lower berth in the common keyboard of a QWERTY array and a notation are set up.

[0235] The internal configuration of touch type key input equipment 11 is the same as that of said 5th operation gestalt, and is equipped with the touch type input means 71, the input distinction means 72, and the alphabetic character selection output means 73. Moreover, the above-mentioned bar touch actuation is adopted as well as said operation gestalt as an approach of distinguishing the difference in touch alter operation.
[0236] That is, two kinds of alphabetic characters are set to each letter keys 121-135, and those alphabetic characters are displayed on an upper left and lower right side to the keytop core which is a criteria location. And as shown in drawing 46 , it is set up so that the location to the criteria location of each alphabetic character displayed on the keytop and the 2-way (the direction 101 of the upper left, the direction 108 of the lower right) as a migration direction later mentioned in the case of a bar touch input may correspond, and the alphabetic character by the side of the migration direction is inputted according to each migration direction.
[0237] In addition, the input distinction means 72 functions like the 1st operation gestalt and abbreviation except the migration direction which can be distinguished being aforementioned 2-way 101,108. Moreover, the alphabetic character selection output means 73 functions as the 1st operation gestalt similarly, chooses the alphabetic character by the side of the migration direction 101,108 in the case of the bar touch input in the keytop of each letter keys 121-135, and displays it on the liquid crystal screen 3.
[0238] According to the above **** 6 operation gestalten, in addition to the effectiveness of (5-1) of said 5th operation gestalt, - (5-3) (5-5), (5-7), and (5-9), there is the following effectiveness.
(5-13) Since the direction which can be distinguished was made into the 2-way of the direction 101 of the upper left, and the direction 108 of the lower right, when alter operation is carried out, each direction can be distinguished clearly, and the incorrect decision by the input distinction means 72 can be prevented certainly.
[0239] (5-14) The bar touch actuation to each migration direction 101,108 can be distinguished in the area which divided the keytop field of each letter keys 21-32 into two, since the comparatively large range which can be distinguished can be taken compared with the case where it sets up in the six directions, gap of the migration direction for every operator etc. can be absorbed, the migration direction can be recognized certainly, and input operability can be improved.
[0240] (5-15) Since each keys 121-135 of software keyboard 15B are displayed on the liquid crystal screen 13, when you do not need software keyboard 15B, it can use the liquid crystal screen 13 whole widely by not displaying this software keyboard 15B. In case the homepage of the Internet, an image, a table, etc. are seen especially, the range displayed at once becomes large and there is an advantage of being legible.
[0241] (5-16) Since what is necessary is just to set two kinds of alphabetic characters to each letter keys 121-135, magnitude of each letter keys 121-135 can be made small, and the viewing area of software keyboard 15B in the liquid crystal screen 13 can be narrowed. Therefore, viewing areas, such as an image of the liquid crystal screen 13 and a table, can be made large, and an image etc. is legible.
[0242] (5-17) If it is made such Key Caps, it is used more widely than before, and the key sequence foreword of the QWERTY array got used and loved can be set as 15 letter keys 121-135, and for the person familiar to a QWERTY array, Key Caps can be memorized easily and can be used immediately. Furthermore, since what is necessary is just to set up 15 letter keys 121-135, compared with the conventional keyboard, the number of keys can be lessened and can be easily included in a small pocket device etc.
[0243] The [7th operation gestalt], next the 7th operation gestalt concerning this invention are explained with reference to drawing 47 and 48. in addition, this operation gestalt -- also setting -- the same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.
[0244] Although the 7th operation gestalt is applied to a portable telephone like said 5th operation gestalt, the array of the alphabet in each letter key is different from said 5th operation gestalt. Moreover, although referred to as software keyboard 15C which displays a letter key on a liquid crystal screen like

said 6th operation gestalt with this operation gestalt, a keyboard sheet may be stuck and formed like said 5th operation gestalt.

[0245] With the touch type key input equipment 211 of the 7th operation gestalt, it has 15 letter keys 221-235 of 5 steps of vertical right-and-left 3 train. The figure "1, 2, 3, 4, 5, 6, 7, 8, 9, 0" is displayed on the upper left side (the direction side of the upper left to the keytop core which is a criteria location) of the keytop of each letter keys 224-232,234 among these letter keys, respectively.

[0246] Moreover, the alphabet "A, I, U, E, O" which serves as a vowel input in a Japanese Roman alphabet input is displayed on the down side to the keytop core of each letter keys 222 and 225,228,231,234 of a longitudinal-direction central train, respectively. Moreover, the alphabet of three characters is set at a time to each letter key 221,224,227,233 of a left column. If shown to a keytop core in order by the side of the direction of the lower left, down, and the direction of the lower right, "HBP" is set as a letter key 221 by "KGF" and the letter key 224, and, specifically, is set as "SZJ" and a letter key 227 by "TDV" and the letter key 233, respectively. On the other hand, "N" is set to the letter key 230 to the keytop core at the down side.

[0247] The alphabet of two characters is set at a time to each letter key 223,229,232 of a right column. "CQ", if shown to a keytop core in order by the side of the direction of the lower left, and down, "RL" is set as a letter key 223 and, specifically, is set as the letter key 229 by "YX" and the letter key 232, respectively. Moreover, "M" and "W" are set to the down side to the keytop core of a letter key 226,235, respectively.

[0248] Each of these alphabet is arranged in consideration of the Japanese Roman alphabet input. namely, the thing combined with a vowel in a Japanese Roman alphabet input -- "-- it is -- " -- the right and left of the key of a central train by which the vowel was arranged for the consonant "K, S, T, N, H, M, Y, R, W" which inputs a line - "**" line -- and it is arranged in order of the lower right letter key 235, respectively from the letter key 233 of the upper left letter key 221 to the lower left, and the upper right letter key 226.

[0249] Moreover, alter operation of dulness is made easy to set it as the letter key 221,224,227,233 to which Kiyone "K relevant to those dulness for the consonant "G, Z, D, B" for inputting each dulness of ****, ****, snaking, and ****", and "S, T, H" were set, respectively, and to memorize. Since the consonant "P" for inputting the p-sound of "****" is set as the letter key 223 to which furthermore, related Kiyone "H" was set, alter operation of a p-sound is also made easy to memorize.

[0250] The internal configuration of this touch type key input equipment 211 as well as said 5th operation gestalt is equipped with the touch type input means 71, the input distinction means 72, and the alphabetic character selection output means 73 (refer to drawing 40).

[0251] Moreover, as the alphabetic character input approach is also shown in drawing 48 , the bar touch input to four directions with a pen is adopted. That is, a figure will be inputted if the bar touch input to the direction 101 of the upper left is performed in each letter keys 224-232,234 as which the figure was displayed. Moreover, in each letter keys 221-235, if a bar touch input is performed in the direction 106 of the lower left, down [107], and the direction 108 of the lower right, the alphabet (English 2 sides and the direction side of the lower right English 3 [The direction side of the lower left / English 1 side and a down side]) displayed on the direction side which corresponds in each letter keys 221-235 will be inputted, respectively.

[0252] According to the above **** 7 operation gestalten, in addition to the effectiveness of each of said operation gestalt, there is the following effectiveness.

(5-18) Since "I, a vowel, i.e., "A", with the highest operating frequency,", "U", "E", and "O" were set as the independent keys 222 and 225,228,231,234 also in Japanese or English, these alphabetic characters can be inputted easily, can improve input operability, and can perform a high-speed input. That is, since the alphabet is only the one vowel, for example, even if it serves as bar touch alter operation to the direction of the lower right, or the direction of the lower left somewhat not only in down bar touch alter operation, it can be recognized to be actuation to down to the letter keys 222 and 225,228,231,234 to which the vowel was set, and can input a vowel into them. Therefore, since the input operability of a vowel with high input frequency can be improved, the input operability as the whole can also improve.

[0253] (5-19) Since a vowel "A", "I", "U", "E", and "O" are arranged by the 1st step to the 5th step of letter keys 222 and 225,228,231,234 of a central train, they tend to memorize the key position of each vowel, and they can improve operability more. That is, since it is arranged in order of "AIUEO (Japanese alphabet)" toward the bottom in the center of Key Caps from the top, operability can also improve that it is easy to recognize Key Caps. since a vowel is moreover inputted a consonant and by turns in a Roman alphabet input -- each -- if the vowel key is arranged between the right-and-left trains in which the consonant was arranged, the movement magnitude of the pen at the time of inputting a consonant and a vowel by turns etc. can be stopped to the minimum, and input operability can be improved further.

[0254] "G" which inputs further "K" which inputs a "mosquito" line, and a "GA" line in a Roman alphabet input (5-20) To a key 221 "Z" which inputs "S" which inputs a "SA" line, and a "THE" line to a key 224 Since "B, P" which input "H" and the BA line which input the Ha line into a key 227 for "D" which inputs "T" which inputs a TA line, and a DA line, and a PA line were set as the key 233, respectively Related Kiyone and dulness, and a p-sound can be inputted by changing only the bar touch input direction using the same key. For this reason, the key position for dulness and p-sounds can be grasped easily, and it becomes easy to memorize alter operation, and can input into a high speed.

[0255] The [8th operation gestalt], next the 8th operation gestalt concerning this invention are explained with reference to drawing 49 and 50. in addition, this operation gestalt -- also setting -- the same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.

[0256] Although the alphabet was arranged and expressed to each letter key as said each operation gestalt, a kana alphabetic character (hiragana) is displayed on each letter keys 321-332, and you may make it input these into them by bar touch alter operation with this operation gestalt, as shown in drawing 49 .

[0257] That is, the figure is displayed on each letter keys 321-332 upward to the keytop center position used as the criteria location on the front face of a key. Moreover, below the center position, 3-5 kana alphabetic characters are displayed. these kana alphabetic characters -- respectively -- "****, ****, and a Sa line -- a Ta line -- it is set as each letter keys 321-329,331 by every line, limping gait, Ma line, ****, ****, and Wa line."

[0258] And a figure will be inputted, if bar touch alter operation is performed to above [302] by each letter keys 321-329,331 as shown in drawing 50 . Moreover, by each letter keys 321-329,331, if bar touch alter operation is performed in each directions 305-309 (the direction 308 of the 2nd lower right which it is between the direction 306 of the 2nd lower left which it is between the direction 305 of the lower left, down [307], the direction 309 of the lower right, the direction 305 of the lower left, and down [307], the direction 309 of the lower right, and down [307]), the kana alphabetic character displayed on the corresponding location will be inputted, respectively.

[0259] Moreover, in a letter key 330, if bar touch alter operation is performed in the direction 305 of the lower left, "** (voice sound symbol)" will be inputted, and if bar touch alter operation is performed in the direction 309 of the lower right, "degree (semivoiced sound mark)" will be inputted.

[0260] furthermore -- if bar touch alter operation is performed in the direction 305 of the lower left in a letter key 332 -- "-- if " (punctuation marks) is inputted, "- (prolonged sound)" will be inputted if bar touch alter operation is performed to down [307], and bar touch alter operation is performed in the direction 309 of the lower right -- ". (Period) " -- it is inputted.

[0261] According to such a **** 8 operation gestalt, in addition to the effectiveness of each of said operation gestalt, there is the following effectiveness.

(5-21) Since the direct input of the kana alphabetic character displayed on letter keys 321-332 can be carried out in one bar touch alter operation, Japanese input operability can be improved that it is easy to understand alter operation. That is, in order to input kana alphabetic characters other than a vowel in a Roman alphabet input, two characters, a consonant and a vowel, must be inputted, but with this operation gestalt, since a kana alphabetic character can be inputted by one alter operation, the part and input effectiveness can be improved.

[0262] (5-22) Moreover, since Key Caps of a kana alphabetic character corresponds to the Japanese syllabary table, an input person can grasp the location of each alphabetic character easily, and input operability can be improved also at this point.
[0263] The [9th operation gestalt], next the 9th operation gestalt concerning this invention are explained with reference to drawing 51 -56. in addition, this operation gestalt -- also setting -- the same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.
[0264] This operation gestalt constitutes so that the alphabetic character which occurs frequently at the time of a Japanese input can be inputted by predetermined bar touch (special bar touch) actuation by combining the bar touch alter operation which moves a pen only in the one direction, a both-way bar touch input, a right-turn bar touch input, and a left-turn bar touch input. Concretely, as a keyboard sheet 5 of the touch type key input equipment 1 which consists of a Personal Digital Assistant (PDA) of the 1st operation gestalt, the case where the sheet 5 of "kana and a QWE array" as shown in drawing 51 is used is made into an example, and it explains.
[0265] Eleven letter keys 21-31 and 12 function keys 51-62 are formed in the keyboard sheet 5. Function keys 51-62 perform various functions, such as various input modes, a shift and a backspace, and a return, and are the same as that of said each operation gestalt fundamentally.
[0266] On the other hand, the QWE array of the alphabet based on the kana array and QWERTY array of 50 sounds, and a figure and a notation are set to letter keys 21-31. That is, "QWE", "RTY", "UIO", "ASD", "FGH", "JKL", "ZXC", "VBN", and "M, ." are set to the lower right location the lower left of each letter keys 21-29, and the bottom, respectively. Each of these alphabet etc. is inputted by performing a bar touch input in the direction of the lower right the lower left and the bottom to each letter keys 21-29 in each mode other than kana input mode. Moreover, the figure written at the upper left of letter keys 21-30 and the notation written by the upper right and the right the top are performing a bar touch input, and can be inputted in each direction.
[0267] the alphabetic character of the "**" stage with which each line in 50 sound array of a kana alphabetic character is expressed to the left location of each letter keys 21-30 on the other hand, i.e., "**, **, and ** -- ** -- **, **, and ** -- **" is displayed. And if input mode is changed to a kana input, as shown in drawing 52 Alphabetic characters of the A stage of each line, such as etc., "-- it is -- " -- are inputted in the bar touch input to the left. Alphabetic characters of an I stage, such as etc., "-- coming -- " -- are inputted in the bar touch input of the direction of the lower left, and the alphabetic characters ("**" etc.) of a U stage are inputted in a down bar touch input. The alphabetic characters ("**" etc.) of an E stage are inputted in the bar touch input to the direction of the lower right, and he is trying to be inputted in the bar touch input to the right in the alphabetic characters ("**" etc.) of an O stage. That is, in the kana alphabetic character of 50 sound array, only the alphabetic character of the A stage of each line is displayed on a letter key 21-29, and each alphabetic character from an I stage to an O stage is not displayed directly on a letter key 21-29, but is set up virtually. Moreover, in the key 30, a display setup of "**", "**", "**", and the "**" is carried out at the lower right the left, the lower left, and the bottom, respectively. In addition, also in this kana input mode, the upper left and a top, if an upper right bar touch input is performed, the figure and notation which were set up in that direction will be inputted.
[0268] The voice sound symbol "**" and semivoiced sound mark "degree" which are inputted in the bar touch input of the left besides a tooth-space input function and the right are displayed on the letter key 31, respectively. In Key Caps to which 50 sound array of such Japanese was set, the following input approach besides the input of the kana alphabetic character by the usual bar touch input is set up.
[0269] Although it is inputted because [simple input of dulness, p-sound, and small letter of 9-1. kana] dulness and a p-sound perform the kana alphabetic character input-back in a bar touch input and usually perform the left or a right bar touch input by the letter key 31, and a small letter is inputted by using Shift-key 54, it is set up so that the easy following actuation can also be inputted.
(1) After carrying out the bar touch of the Kiyone, dulness will be inputted if the tap of the same key is carried out once.
(2) After carrying out the bar touch of the Kiyone, a p-sound will be inputted if the tap of the same key

is carried out twice.
(3) After carrying out the bar touch of the kana, a small letter will be inputted if the tap of the same key is carried out once. In addition, although dulness and a small letter are the same key strokes, since only either exists as an alphabetic character in alphabetic characters other than a "**", an input is certainly distinguishable. Moreover, with this operation gestalt, since the small letter "**" is set as the key 30, if the tap of the key 24 is carried out once for a "**" after an input in a bar touch input, dulness "**" will be inputted.
[0270] Although many idioms of the phonetic reading kanji are used for the text of [high-speed input of 9-2. phonetic reading kanji] Japanese, there is a certain amount of regularity in the pronunciation as used also for shorthand. That is, the tail of an idiom becomes a prolonged sound peculiar to the phonetic reading kanji, a syllabic nasal, and a geminated consonant in many cases, and can carry out a high-speed input by the next special bar touch in this case. In addition, the dulness and the p-sound in that case can input the same key by carrying out a tap, after carrying out a special bar touch.
[0271] If a both-way bar touch input is performed toward each direction (the left, the lower left, the bottom, the lower right, the right, a top, upper right) by each letter keys 21-30 as shown in [high-speed input of 9-2-1. prolonged sound] drawing 53 , and 54, the alphabetic character of a prolonged sound (AI, UU, EI, OU, YUU, YOU) will be inputted for a tail. In addition, a both-way bar touch input moves more than predetermined die length, touched from the point first touched in the field of a letter key, and means the alter operation made [hard flow] to carry out predetermined die-length migration migration toward the original location further. if this both-way bar touch input is performed, for example the both-way bar touch input of each direction (the left, the lower left, the bottom, the lower right, the right, a top, upper right) will be performed by the letter key 22 -- "-- it is -- " -- "-- coming -- it is -- " -- "****" and "****" -- "******" and "today" are inputted "like this", respectively. In addition, although it is the pronunciation used for the Lord, such as "it is small" and "forcing", by native Japanese reading and is reading which is not in the single kanji of phonetic reading, "II" is set up so that it can input in a both-way bar touch input.
[0272] If a left-turn bar touch input is performed toward each direction (the left, the lower left, the bottom, lower right, right) by each letter keys 21-30 as shown in [high-speed input of 9-2-2. syllabic nasal] drawing 55 , the alphabetic character whose tail is a syllabic nasal will be inputted. In addition, a left-turn bar touch input moves more than predetermined die length, touched from the point first touched in the field of a letter key, breaks leftward to the migration direction further, and means the alter operation which carries out predetermined die-length migration. If this left-turn bar touch input is performed, if the left-turn bar touch input of each direction (the left, the lower left, the bottom, lower right, right) is performed by the letter key 22, the alphabetic character whose tail of "****", "****", "****", a "house", and "not coming" is a syllabic nasal will be inputted, respectively, for example. The same input can be performed also when it carries out by other letter keys.
[0273] If a right-turn bar touch input is performed toward each direction (the left, the lower left, the bottom, lower right, right) by each letter keys 21-30 as shown in [high-speed input of 9-2-3. geminated consonant] drawing 56 , the alphabetic character whose tail is a syllabic nasal will be inputted. In addition, a right-turn bar touch input moves more than predetermined die length, touched from the point first touched in the field of a letter key, breaks rightward to the migration direction further, and means the alter operation which carries out predetermined die-length migration. If this right-turn bar touch input is performed, if the right-turn bar touch input of each direction (the left, the lower left, the bottom, lower right, right) is performed by the letter key 22, the alphabetic character of a geminated consonant "**" will be inputted for the tail of "****", "****", "****", "****", and "****", respectively, for example. The same input can be performed also when it carries out by other letter keys.
[0274] When the same effectiveness as said each operation gestalt is acquired also in such this operation gestalt, since three kinds of above-mentioned high-speed inputs are set up, tails, such as opening of traffic (KAITUU), an inclination (KEIKOU), economy (KEIZAI), and religion (SYUUKYOU), can input the kanji of a prolonged sound into a high speed in a both-way bar touch input. Moreover, tails, such as relief (bean jam ****), completeness (********), development (it is not crawling), and

accounting (Mr. ****), can input the kanji of a syllabic nasal or a geminated consonant into a high speed in the bar touch input of left turn and right-turn. For this reason, since the idiom of the phonetic reading kanji used by the Japanese text can be inputted into a high speed by easy actuation, input effectiveness can be improved and a high-speed input can be performed also in a bar touch input. [many]
[0275] In addition, said prolonged sound, a syllabic nasal, and not only a geminated consonant but other alphabetic characters are sufficient as the alphabetic character inputted by these three kinds (a round trip, left turn, right-turn) of special bar touch inputs. For example, you may enable it to input the alphabetic character of every country in the world, such as greek letters other than a kana alphabetic character or the alphabet, Roman numerals, and Latin, the fixed form phrase set up by the user etc. If it enables it to recognize three kinds of special bar touch inputs other than the usual bar touch input, compared with the case of one kind of bar touch input, a 4 times as many input variation as this is realizable. That is, when 96 alphabetic characters are set up by the input of eight directions by 12 letter keys, by setting up three more kinds of bar touch inputs, a 96x4=384 piece alphabetic character can be set up, and it can also set up so that the alphabetic character of every country in the world can be inputted.
[0276] The [10th operation gestalt], next the 10th operation gestalt concerning this invention are explained with reference to drawing 57 -59. in addition, this operation gestalt -- also setting -- the same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.
[0277] With said each operation gestalt, although the bar touch input was performed every letter key 21-32, the input area which summarized two or more letter keys in addition to the bar touch alter operation for such every individual key is set up, and it constitutes from this operation gestalt so that the input using the input area can also be performed. Concretely, as a keyboard sheet 5 of the touch type key input equipment 1 which consists of a Personal Digital Assistant (PDA) of the 1st operation gestalt, the case where the sheet 5 of "a standard array (AIU array)" as shown in drawing 57 is used is made into an example, and it explains.
[0278] Twelve letter keys 21-32 and 12 function keys 51-62 are formed in the keyboard sheet 5. Function keys 51-62 perform various functions, such as various input modes, a shift and a backspace, and a return, and are the same as that of said each operation gestalt fundamentally. Moreover, since each array of the alphabet of letter keys 21-32, a figure, and a notation is the same as that of the thing of the 1st operation gestalt shown in drawing 2 , explanation is omitted.
[0279] If the bar touch input of eight directions is performed by each letter keys 21-32, the alphabet, a figure, and a notation will be inputted [in / as well as said 1st operation gestalt / this operation gestalt], respectively. Even if it is an input for such every letter key 21-32, the number of keys decreases compared with the software keyboard which displays the usual alphabet of 26 characters and the usual kana of 50 characters on a screen, and inputs them, and since each key is large, it is easy to input. However, since the magnitude of each letter keys 21-32 is also restricted to a certain amount of magnitude from a limit of the magnitude of the PDA (touch type key input equipment 1) itself, it is difficult to perform the blind bar touch input which performs a bar touch input without seeing each key.
[0280] Then, as shown in drawing 58 , with two or more letter keys and this operation gestalt, input area 501,502 is set up by six letter keys, and a blind bar touch input is enabled without seeing a key by enlarging an input area. The concrete approach of a bride bar touch input is explained below.
[0281] By carrying out the bar touch input of either of the function keys 55-58 in [a change to a 10-1. blind mode, for example, the right-hand side of letter keys 21-32,] down, it changes to a blind mode and two input area 501,502 is set as the whole letter-keys 21-32 field. In addition, it returns to the original canonical mode (individual input mode) by the same bar touch. Here, it is formed of six letter keys, respectively, and, as for each input area 501,502, a user can grasp now easily each input area 501,502 virtually set up by each letter keys 21-32 of letter keys 21-26 and letter keys 27-32 currently displayed.
[0282] In each mode of a [input of 1st alphabetic character of 10-2. letter key] kana input (Roman alphabet input), or an alphabet input, as shown in drawing 59 , the bar touch of the near input area 501,502 where the letter key is contained is carried out using the bar touch alter operation for area set up corresponding to the letter key to which the alphabetic character to input was set. Namely, what is

necessary is just to perform the bar touch input of the direction of the upper left in the upper input area 501, in inputting "A (**)" set to the 1st of a letter key 21. Similarly, if an above bar touch is performed in input area 501, "I" of a letter key 22 will be inputted. If the bar touch of the direction of the upper right is performed, "U" of a letter key 23 will be inputted, if the bar touch of the direction of the lower left is performed, "E" of a letter key 24 will be inputted, if a down bar touch is performed, "O" of a letter key 25 will be inputted, and if the bar touch of the direction of the lower right is performed, "Y" of a letter key 26 will be inputted. Moreover, if the bar touch of the direction of the upper left is performed, "K" of a letter key 27 will be inputted in input area 502. If an above bar touch is performed, "S" of a letter key 28 will be inputted, and if the bar touch of the direction of the upper right is performed, "T" of a letter key 29 will be inputted. If the bar touch of the direction of the lower left is performed, "N" of a letter key 30 will be inputted, if a down bar touch is performed, "H" of a letter key 31 will be inputted, and if the bar touch of the direction of the lower right is performed, "R" of a letter key 32 will be inputted.

[0283] In order to input the 2-3rd alphabetic characters set as [input of 2nd and 3rd alphabetic character of 10-3. letter key] each letter keys 21-32 After performing each bar touch input in each input area 501,502 and inputting the 1st above-mentioned alphabetic character, if the 2nd alphabetic character of the letter key inputted when the tap of the same input area 501,502 was carried out once is inputted and carries out a tap twice, the 3rd alphabetic character will be inputted. For example, the bar touch input of the direction of the upper left is performed in input area 502, and "F" will be inputted, if the tap of the input area 502 is continuously carried out once after an input in "K", and "G" will be inputted and will carry out a tap twice.

[0284] In order to input the figure and notation which were set as [input of 10-4. figure and notation] each letter keys 21-32 After performing each bar touch input in each input area 501,502 and inputting the 1st above-mentioned alphabetic character Each upper right notation is inputted, respectively the upper left of the letter key which the figure of the letter key inputted when the bar touch input of the same input area 501,502 was carried out leftward was inputted, and was inputted when the bar touch input was carried out rightward 1 to 3 times, and a top. for example, -- if the bar touch input of the direction of the upper left is performed in input area 502, "7" will be inputted if the bar touch input of the "K" is continuously carried out leftward after an input, and a bar touch input is carried out rightward once -- "-" -- if a bar touch input is carried out twice -- "+" -- "_" will be inputted if a bar touch input is carried out 3 times.

[0285] After the input of a [functional of 10-5. various kinds] alphabetic character, a figure, and a notation, if the tap of the input area 501,502 different from it is carried out, "conversion/Space" will function, "BS" functions leftward as carrying out a bar touch, and a "return" functions rightward as carrying out a bar touch. However, the function set as each function keys 51-62 can also be performed by carrying out the metal to metal tap of each function keys 51-62 in blind bar touch mode as well as the usual mode.

[0286] When are set as figure mode or symbolic mode by the [10-6. figure and symbolic mode] function key 51 and bar touch alter operation for area is performed, instead of the 1st alphabetic character being inputted, a figure and a notation have priority and it comes to be inputted.

[0287] Also in such this operation gestalt, by performing a bar touch input every letter key 21-32, since the alphabet, a figure, a notation, etc. can be inputted, the same operation effectiveness as said each operation gestalt can be done so. Moreover the imagination input area 501,502 is appointed, and since the input using this input area 501,502 can also be performed and each alphabetic character can be inputted by bar touch actuation in bigger area, alter operation becomes still easier. Thereby, it can input as well as the blind touch input of a keyboard without seeing each letter keys 21-32 each time, and input operability can be improved. Furthermore, since each alphabetic character can be inputted and it is easy to memorize by comparatively little action, a visually impaired person is able to input and it is suitable also as a welfare device.

[0288] The [11th operation gestalt], next the 11th operation gestalt concerning this invention are explained with reference to drawing 60 and 61. in addition, this operation gestalt -- also setting -- the

same or, same sign as a considerable component as said each operation gestalt -- giving -- explanation -- an abbreviation -- or it carries out simple.

[0289] The fundamental view is the same although the point of having summarized the input area where this operation gestalt was divided into two in said 10th operation gestalt to one input area 503 is different. The case where the keyboard sheet 5 of "a standard array (AIU array)" as shows concrete actuation to drawing 57 like the 10th operation gestalt is used is made into an example, and it explains. First, if the bar touch input of eight directions is performed by each letter keys 21-32, the point that the alphabet, a figure, and a notation are inputted, respectively is the same as said 10th operation gestalt as well as said 1st operation gestalt. On the other hand, if it changes to a blind mode, as shown in drawing 60 , input area 503 will be set up by 12 letter keys 21-32. The concrete operating instructions in bride mode are explained below.

[0290] Like the 10th operation gestalt of [a change to a 11-1. blind mode], by carrying out the bar touch input of either of the function keys 55-58 down, it changes to a blind mode and input area 503 is set as the whole letter-keys 21-32 field. In addition, it returns to the original canonical mode (individual input mode) by the same bar touch.

[0291] In each mode of a [input of 1st alphabetic character of 11-2. letter key] kana input (Roman alphabet input), or an alphabet input, as shown in drawing 61 , the bar touch of the input area 503 is carried out using the bar touch alter operation for area set up corresponding to the letter key to which the alphabetic character to input was set. Namely, what is necessary is just to perform the both-way bar touch input of the direction of the upper left in input area 503, in inputting "A (**)" set to the 1st of a letter key 21. Similarly, if an above both-way bar touch is performed in input area 503, "I" of a letter key 22 will be inputted, and if the both-way bar touch of the direction of the upper right is performed, "U" of a letter key 23 will be inputted. Moreover, if the bar touch of the direction of the upper left is performed, "E" of a letter key 24 will be inputted, if an above bar touch is performed, "O" of a letter key 25 will be inputted, and if the bar touch of the direction of the upper right is performed, "Y" of a letter key 26 will be inputted. Moreover, if the bar touch of the direction of the lower left is performed, "K" of a letter key 27 will be inputted in input area 503. If a down bar touch is performed, "S" of a letter key 28 will be inputted, and if the bar touch of the direction of the lower right is performed, "T" of a letter key 29 will be inputted. If the both-way bar touch of the direction of the lower left is performed, "N" of a letter key 30 will be inputted, if a down both-way bar touch is performed, "H" of a letter key 31 will be inputted, and if the both-way bar touch of the direction of the lower right is performed, "R" of a letter key 32 will be inputted.

[0292] In order to input the 2-3rd alphabetic characters set as [input of 2nd and 3rd alphabetic character of 11-3. letter key] each letter keys 21-32 After performing each bar touch input for area in input area 503 and inputting the 1st above-mentioned alphabetic character, if the 2nd alphabetic character of the letter key inputted when the tap of the input area 503 was carried out once is inputted and carries out a tap twice, the 3rd alphabetic character will be inputted. For example, the bar touch input of the direction of the lower left is performed in input area 503, and "F" will be inputted, if the tap of the input area 503 is continuously carried out once after an input in "K", and "G" will be inputted and will carry out a tap twice.

[0293] In order to input the figure and notation which were set as [input of 11-4. figure and notation] each letter keys 21-32 After performing each bar touch input in input area 503 and inputting the 1st above-mentioned alphabetic character Each upper right notation is inputted, respectively the upper left of the letter key which the figure of the letter key inputted when the bar touch input of the input area 503 was carried out leftward was inputted, and was inputted when the bar touch input was carried out rightward 1 to 3 times, and a top. for example, -- if the bar touch input of the direction of the lower left is performed in input area 503, "7" will be inputted if the bar touch input of the "K" is continuously carried out leftward after an input, and a bar touch input is carried out rightward once -- "-" -- if a bar touch input is carried out twice -- "+" -- "_" will be inputted if a bar touch input is carried out 3 times.

[0294] In order to perform the function set as the [functional of 11-5. various kinds] function keys 51-58, specifically, each function can be performed by the bar touch for area set as each function keys 51-

62 in drawing 61 , and performing left turn of each vertical and horizontal direction, and a right-turn bar touch input. However, the function set as each function keys 51-62 can also be performed like said 10th operation gestalt by carrying out the metal to metal tap of each function keys 51-62 in blind bar touch mode as well as the usual mode.

[0295] When are set as figure mode or symbolic mode by the [11-6. figure and symbolic mode] function key 51 and bar touch alter operation for area is performed, instead of the 1st alphabetic character being inputted, a figure and a notation have priority and it comes to be inputted.

[0296] Also in such this operation gestalt, since the input which set up the imagination input area 503 and used this input area 503 like said 10th operation gestalt can also be performed, alter operation becomes still easier. Since it is twice the magnitude of the input area 501,502 of said 10th operation gestalt, alter operation becomes easy further and especially input area 503 can be performed easily [one layer of blind bar touch input nearby].

[0297] The deformation in the range which is [Modification(s)] and which this invention is not limited to said each operation gestalt, and can attain the purpose of this invention, amelioration, etc. are included in this invention. For example, in addition to a bar touch input, with said each operation gestalt, there were some which also set up the pin touch input (a tap input, tap actuation) as the alphabetic character input approach, but a pin touch input does not need to be set up. However, the way which also set up the pin touch input can unite and change alter operation into an application, liking, etc., and there is an advantage which can respond to many users' needs.

[0298] Moreover, what is necessary is just to set up suitably as an array of the alphabetic character to each letter key not only in what was indicated by said each operation gestalt but in operation. for example, as a keyboard sheet 5, as an object for PDA (touch type key input equipment 1) for Japan in which a Japanese input is possible the standard array (AIU array) of drawing 57 -- drawing 51 -- everything but -QWE array (50 sound virtual arrangement) For example, the kana array of drawing 62 , the QWE array of drawing 63 , the cellular-phone array (50 sound virtual arrangement) of drawing 64 , and the QWE array (three 3 steps of trains type) of drawing 65 are prepared, it chooses suitably, and you may enable it to use.

[0299] In addition, like the 8th operation gestalt, the kana array of drawing 62 does not set the alphabet as each letter keys 21-32, but sets up a kana alphabetic character based on 50 sound array. and the alter operation -- drawing 51 -- it is the same as that of the bar touch alter operation of the "kana input mode" in -QWE array. Namely, alphabetic characters of the A stage of each line, such as ", "-- are inputted in the bar touch input to the left., as shown also in drawing 66 Alphabetic characters of an I stage, such as etc., "-- alike -- " -- are inputted in the bar touch input of the direction of the lower left, and the alphabetic characters ("**" etc.) of a U stage are inputted in a down bar touch input. The alphabetic characters ("**" etc.) of an E stage are inputted in the bar touch input to the direction of the lower right, and he is trying to be inputted in the bar touch input to the right in the alphabetic characters ("**" etc.) of an O stage. Moreover, the upper left and a top, if an upper right bar touch input is performed, the figures ("5" etc.) and notations ("=, -", etc.) which were set up in the direction will be inputted.

[0300] the QWE array of drawing 63 -- the 9th operation -- a gestalt -- it is a thing in the condition of having lost the kana alphabetic character from -QWE array, and the alphabet, a figure, and a notation can be inputted by each bar touch alter operation. what has the alphabet the same as that of the alphabet array in a portable telephone as well as the 5th operation gestalt of drawing 38 -- it is -- a kana alphabetic character -- drawing 51 -- it is the same as that of the case of the "kana input mode" in -QWE array. Furthermore, the QWE array (three 3 steps of trains type) of drawing 65 sets up only nine letter keys of the letter keys 21-29 to which the alphabet of drawing 63 was set. In addition, the figure "0" set as the letter key 30 in drawing 63 is set as the bar touch input of the right of a letter key 29. Although the number of the array by these nine letter keys 21-29 of the alphabetic characters which can be set up compared with 12 letter keys decreases, since it turns around each keys 21-29 one and is made to a big key, there is an advantage which it becomes easy to carry out an input and can improve operability.

[0301] Furthermore, as a keyboard sheet 5, the standard array (AIU array) of drawing 67 , the QWE array of drawing 68 , the ABC array of drawing 69 , the cellular-phone array of drawing 70 , the QWE

array (three 3 steps of trains type) of drawing 71 , and the ABC array (three 3 steps of trains type) of drawing 72 are prepared, it chooses suitably as an object for PDA (touch type key input equipment 1) for English, and you may enable it to use. Also when these keyboard sheets 5 of various kinds of are used, the alphabet written by each keytop, a figure, and a notation can be inputted by performing a bar touch input in each direction on each key 21-32. And you may enable it to perform the high-speed input of the 9th operation gestalt also in each of these Key Caps.

[0302] With said 10th and 11 operation gestalt, although each alphabetic character, the figure, and the notation were inputted with the combination of the bar touch input for area, and a tap input and a bar touch input etc., in input area 501-503, each alphabetic character, a figure, and a notation may be inputted by performing bar touch alter operation twice. That is, letter keys 21-32 are chosen by the 1st bar touch alter operation, and you may make it choose each alphabet in each letter keys 21-32, a kana alphabetic character, a figure, and a notation by the 2nd bar touch alter operation. The blind bar touch input using input area 501-503 may be used not only in Key Caps of said 10th and 11 operation gestalt but in various kinds of Key Caps shown in drawing 62 -72.

[0303] Moreover, the class or array of the alphabetic character displayed on each letter key are not restricted to what was indicated by said each operation gestalt and modification. For example, in case the QWERTY array shown in the 6th operation gestalt is realized, as shown in drawing 73 , you may arrange so that every two alphabetic characters of each stage of the usual keyboard may be set as each letter keys 121-135 in an order from left-hand side. Furthermore, in each stage, you may arrange so that the alphabetic character chosen from right-and-left both ends like the 2nd two alphabetic characters may be set as one letter key from two alphabetic characters of right-and-left both ends, and both ends.

[0304] Moreover, in case the Japanese kana syllabary array shown in the 8th operation gestalt is realized, as shown in drawing 74 , in each letter keys 321-332, each kana alphabetic character may be set to the above, direction of the upper right, direction of the lower left, down, and direction side of the lower right. In this case, compared with each directions 305-309 of the 8th operation gestalt, division of each direction becomes clear at the time of bar touch alter operation, and there is an advantage which can improve input operability.

[0305] Moreover, in a standard array as shown in drawing 1 etc., the input mode which can input the "kana alphabetic character" which is not directly written by the key front face may be set up. In this input mode, if pin touch actuation (tap actuation) which touches with a pen etc. the keys 21-25 as which the vowel "AIUEO" was displayed so that it may not be made to move more than predetermined die length is performed for example, as shown in drawing 75 (A), a vowel "the Japanese alphabet" will be inputted. Moreover, if bar touch actuation is performed in the direction of the lower left by keys 21-25, a small vowel "**********" will be inputted. Furthermore, if bar touch actuation is performed downward by keys 24 and 25, a geminated consonant "**" and a syllabic nasal "**" will be inputted. Moreover, if bar touch actuation is performed in the direction of the lower right by keys 21, 23, and 25, the small letter "********" used for the input of a contracted sound will be inputted. If bar touch actuation is performed rightward by keys 23 and 25, "******" and "******" which are used for the input of long contracted sounds, such as "******" and "******", will be inputted.

[0306] moreover, the "kana alphabetic character" by which a Roman alphabet input will be carried out by the consonant displayed on the lower left side of the key, and "A" if pin touch actuation is performed by the written keys 26-32 as shown in drawing 75 (B) -- that is, -- each -- the alphabetic character "****** shelves" of "****" of a consonant is inputted. if similarly bar touch actuation is performed in the direction of the lower left by each keys 26-32 -- each, if the alphabetic character of "****" of a consonant is inputted and bar touch actuation is performed downward each -- if the alphabetic character of "****" of a consonant is inputted and bar touch actuation is performed in the direction of the lower right -- each -- if the alphabetic character of "****" of a consonant is inputted and bar touch actuation is performed rightward -- each -- the alphabetic character of the "stage" of a consonant is inputted. therefore -- for example, the key 28 as which "S" was displayed is shown in drawing 76 , when pin touch actuation and each bar touch actuation are performed -- as -- "-- it puts and ******" is inputted.

[0307] On the other hand, performing bar touch actuation by the written keys 26-32, finally, if the so-

called U-turn actuation returned to some extent to hard flow is performed, as shown in the right column of drawing 75 (B), the "kana alphabetic character" of the stage of each vowel of consonants displayed on the key bottom (from the left to the 2nd), such as dulness, will be inputted as the migration direction. However, since there is no consonant expressed with "C", it has come to be able to perform the input of the p-sound using "P" written on the right-hand side of the key 31 (from the left to the 3rd) in U-turn actuation by the key 30. Therefore, if left U-turn actuation is performed by keys 27-31, the alphabetic character of "****" of dulness or a p-sound will be inputted, if lower left U-turn actuation is performed, the alphabetic character of "****" will be inputted, if bottom U-turn actuation is performed, the alphabetic character of "****" will be inputted, if lower right U-turn actuation is carried out, the alphabetic character of "****" will be inputted, and if right U-turn actuation is carried out, the alphabetic character of a "stage" will be inputted.

[0308] Moreover, by the key 26, "**" is inputted by left U-turn actuation, and "**" is inputted by right U-turn actuation. Furthermore, by the key 32, the alphabetic character, i.e., "eye ******", of the "**** - the stage" of the consonant "M" displayed on the key 32 bottom by each actuation is inputted. therefore -- for example, a key 28 is shown in drawing 77 , when U turn each actuation is performed -- as -- "-- ******** -- " -- it is inputted. What is necessary is for such an input approach to be available and just to incorporate it by Key Caps set as the key from which a consonant and a vowel differ, for example, the 7th operation gestalt shown in drawing 47 , suitably if needed.

[0309] Moreover, although there are some which displayed the alphabet on the keytop bottom of each letter keys 21-32, and displayed the notation on the keytop bottom, and displayed the figure etc. on the keytop left-hand side of each letter keys 21-30 with said each operation gestalt In these, a figure may be displayed on the keytop bottom, the alphabet and a kana alphabetic character may be displayed on the keytop bottom, a notation may be displayed on keytop right-hand side, and the display position of the alphabetic characters (a figure, the alphabet, a kana alphabetic character, notation, etc.) in each letter keys 21-32 may be changed suitably. However, since the way which has the alphabet used most frequently in a sentence and a kana alphabetic character in the bottom serves as actuation when writing an alphabetic character in the case of a bar touch input, and actuation to the same direction, there is an advantage of it being concordance-easy and being easy to input.

[0310] In said operation gestalt, although it considered as the eight directions of the direction of the lower left, down, the direction of the lower right, the direction of the upper left, above, the direction of the upper right, the left, and the right when the migration direction of a bar touch was made into eight directions, division of eight directions is not limited in these directions. Furthermore, in said each operation gestalt, although distinction of the bar touch actuation to eight directions or four directions was enabled, you may set not only to these but to a 2-way, three directions, five directions and six directions, and the 7 direction pan possible [distinction of the direction numbers of others, such as nine or more etc. directions,]. And what is necessary is just to set up the migration direction of a bar touch according to the array (display) of the alphabetic character to each letter key. What is necessary is to regard it as the input of the direction where the alphabetic character which disregards the input of the direction where the alphabetic character is not set up when there are few alphabetic characters on the basis of such eight directions than it, or adjoins the input of the direction is set up, since a user can also fully divide an input especially, if eight directions, i.e., one direction, are include-angle within the limits extent which is 45 degrees in bar touch alter operation, and just to process. What is necessary is just to, set up distinction of the bar touch input direction suitably according to the set-up number of alphabetic characters in short. For example, what is necessary is just to be able to distinguish the five migration directions at the time of bar touch actuation, if five alphabetic characters are displayed on each letter keys 21-32.

[0311] Moreover, when the class (for example, three kinds (the alphabet, a figure, and a notation)) of alphabetic character displayed on each letter keys 21-32 be distinguish and the multi-statement of the alphabetic character of the same alphabetic character kind as one key be carry out by the migration direction of a bar touch like said 2nd operation gestalt, you may make it choose the alphabetic character according to individual by the count of bar touch actuation of the direction in this invention. In short, in

this invention, you may make it bar touch actuation choose the class of alphabetic character displayed in the migration direction in each letter key, it may choose the alphabetic character itself, and may combine these further.

[0312] In said each operation gestalt, if detection of a touch input of the liquid crystal screens 3 and 13 is possible, the keyboard sheet 5 will be stuck on the location of arbitration, such as the liquid crystal screen 3 and 13 top and right-hand side, or a software keyboard 15 will be displayed, and an alphabetic character input can be carried out. For this reason, according to the purpose, the location of each keyboard sheet 5 or a software keyboard 15 can be changed, and operability improves more. And in this invention, whether a keyboard sheet is stuck or a software keyboard is displayed should just set up suitably in operation as a display of a letter key.

[0313] Although the auxiliary array which performs a compaction input is set up with said 3rd and 4 operation gestalt, these compaction inputs do not need to set the all up. For example, in the 4th operation gestalt, by the vowel keys 21-25, by the bar touch input of four directions, although it enabled it to input four kinds of alphabetic characters, a vowel geminated consonant character string, a vowel syllabic nasal character string, a compound vowel character string, and a contracted sound character string For example, the notation with which the direction of the upper right was written by the keytop as the principle is inputted, and three kinds of character strings of the four above-mentioned kinds of inside may be made to be inputted in the three remaining directions. What is necessary is in short, just to set up so that at least one kind of character string of the four above-mentioned kinds of character strings may be inputted.

[0314] Furthermore, what is necessary is just to set up suitably the character string inputted in the bar touch input to the direction where the alphabetic character is not displayed in the 4th operation gestalt etc. not only in drawing 27 and the thing illustrated to 28, 36, and 37 but in operation.

[0315] Moreover, these character strings are written to each keytop like other alphabet etc., and you may enable it to input if bar touch actuation is performed towards the notation. However, like said 4th operation gestalt, if it is made not to write to a keytop, there is an advantage of the ability to make it easy to be able to lessen the alphabetic character written by the keytop, a notation, a figure, etc., to be able to enlarge the display size of each alphabetic character to some extent, and to check by looking.

[0316] The alphabetic character which set up each letter keys 21-32 and function keys 51-65 in each operation gestalt, and things other than a function may be set up. What is necessary is just to change suitably in that case, so that it may be easy to use touch type key input equipment.

[0317] Furthermore, although the figure was displayed on each letter key, a figure may not be displayed like the 6th operation gestalt, but only the alphabet and a kana alphabetic character may be expressed as each operation gestalt other than said 6th operation gestalt. Moreover, you may make it also display a figure on each letter key in the 6th operation gestalt. What is necessary is just to set up suitably the class of alphabetic character whose input displays on each letter key and is enabled in short according to various kinds of devices by which touch type key input equipment is incorporated.

[0318] Furthermore, as an array of the alphabetic character to each letter key, the array of the kana alphabetic character to each letter key or the alphabet may be set up according to the kana array in a common keyboard, a Dvorak array, etc.

[0319] (Other modes of invention) The touch type key input equipment of this invention Twelve letter keys 21-32 of 4 steps of vertical right-and-left 3 train as which at least two kinds of alphabetic characters are displayed among a figure, the alphabet, and three kinds of alphabetic characters of a notation, respectively, The input distinction means 72 which can distinguish the migration direction in the bar touch input which moves more than predetermined die length and is inputted, touched from the point which said letter key detected having been touched and touched first in the field of said letter key, It may be characterized by having an alphabetic character selection output means 73 to choose and output the alphabetic character displayed on said migration direction side to the center position of said letter key, according to said migration direction distinguished by this input distinction means.

[0320] Moreover, the touch type key input equipment concerning this invention Twelve letter keys 21-32 of 4 steps of vertical right-and-left 3 train as which at least two kinds of alphabetic characters are

displayed among a figure, the alphabet, and three kinds of alphabetic characters of a notation, respectively, The input distinction means 72 which can distinguish the migration direction in the bar touch input which moves more than predetermined die length and is inputted, touched from the point which said letter key detected having been touched and touched first in the field of said letter key, While having an alphabetic character selection output means 73 to choose and output the alphabetic character displayed on said migration direction side to the center position of said letter key, according to said migration direction distinguished by this input distinction means In the keytop of said letter key, said alphabetic character selection output means may be characterized by choosing and outputting the alphabetic character beforehand set up corresponding to the direction, when said bar touch input is performed in the direction in which said alphabetic character is not displayed.

[0321] Here to five [21-25] of said 12 letter keys The alphabetic character of "A", "I", "U", "E", and "O" which are the alphabet showing a vowel is displayed on each letter key according to an individual. To other seven letter keys 26-32 While other 21 characters of the alphabet are displayed three characters at a time on each letter key, said alphabetic character selection output means In the letter keys 26-32 as which the alphabet was displayed three characters at a time When the bar touch input of the five letter keys 21-25 as which the alphabet which expresses a vowel in the 1st to 3rd three bar touch input direction 106-108 which chooses and outputs each alphabet was displayed is carried out In the 1st bar touch direction 106, it is desirable for "A", "I", "U", "E", and "O" which were displayed on each letter key to be chosen and outputted, and to choose and output the alphabetic character beforehand set up corresponding to the direction in the 2nd and 3rd bar touch directions 107,108.

[0322] With such a configuration, in five letter keys by which the vowel was arranged, since the one alphabet is set up at a time, in the letter key to which other three alphabet was set, respectively, each vowel is inputted by the 1st bar touch direction among the 1-3rd bar touch directions (for example, the direction 106 of the lower left, down [107], the direction 108 of the lower right) for distinguishing each alphabet. Furthermore, in the bar touch direction of the 2nd and 3, the alphabetic character beforehand set up according to the direction is inputted. For this reason, in addition to the alphabetic character written by the keytop, ten alphabetic characters can be inputted in a bar touch input like the alphabetic character on a keytop, and input effectiveness can be improved.

[0323] When the bar touch input of the five letter keys 21-25 as which the alphabet showing a vowel was displayed is carried out in said 2nd and 3rd bar touch directions, said alphabetic character selection output means here The vowel geminated consonant character string into which the vowel set as the letter key and a geminated consonant "**" are inputted in order of a "vowel + geminated consonant", The vowel syllabic nasal character string into which the vowel set as the letter key and a syllabic nasal "**" are inputted in order of a "vowel + syllabic nasal", The compound vowel character string into which two vowels are inputted continuously, It is desirable to be set up so that the alphabetic character of two kinds of character strings in which "y" and the vowel set as the letter key were beforehand set up out of four kinds of character strings with the example of a contracted sound alphabetic character inputted in order of "y+ vowel" may be inputted, respectively.

[0324] Here, vowel geminated consonant character strings are specifically "a **", "i **", "u **", "e **", and "o **", and vowel syllabic nasal character strings are "a **", "i **", "u **", "e **", and "o **." Moreover, compound vowel character strings are "ai", "ui", "uu", "ei", and "ou", and the examples of a contracted sound alphabetic character are "ya", "yu", "ye", and "yo."

[0325] If such an alphabetic character is set up, the input effectiveness in a Japanese Roman alphabet input can be improved very much. That is, there is the about following regularity in Japanese phonetic reading words (idiom of the kanji etc.).

1) The single kanji of all phonetic reading consists of a first-sound knot or a second-sound knot, and there is nothing that becomes three or more syllable.

2) the second-sound turning point of the single kanji of phonetic reading -- surely -- "-- it is - obtaining - - " -- "-- come and it becomes either - **, ** and **********."

3) among these, a second-sound turning point -- "-- it is -- " -- it becomes one double vowel of "AI-UI-EI."

4) a second-sound turning point -- "-- obtaining -- " -- it becomes one double vowel of "UU-OU." Moreover, in the idiom of phonetic reading, the frequency of occurrence is quite high [a contracted sound] like "a work (TYO SYO), an assistant (ZYO SYU), concentration (SYUU TYUU), and commerce (SYOU GYOU)", for example. Then, like this invention, if it enables it to input at least two character strings in a vowel geminated consonant character string with high frequency, a vowel syllabic nasal character string, a compound vowel character string, and a contracted sound character string by one bar touch actuation in Japanese, respectively, Japanese input effectiveness can be improved remarkably.

[0326] Said input distinction means can distinguish the migration direction at the time of said bar touch input in the eight directions, the direction 106 of the lower left, down [107], the direction 108 of the lower right, the direction 101 of the upper left, above [102], the direction 103 of the upper right, the left 104, and the right 105. Furthermore, said alphabetic character selection output means The bar touch migration direction at the time of carrying out the bar touch of the five letter keys as which the alphabet showing a vowel was displayed in the case of down [107], the direction 108 of the lower right, the right 105, and the direction 103 of the upper right It is desirable to output the alphabetic character chosen from the vowel geminated consonant character string beforehand set up corresponding to each direction, the vowel syllabic nasal character string, the compound vowel character string, and the contracted sound character string.

[0327] Thus, if it enables it to input four kinds of alphabetic characters, a vowel geminated consonant character string, a vowel syllabic nasal character string, a compound vowel character string, and a contracted sound character string, by the bar touch alter operation of four directions of down, the direction of the lower right, the right, and the direction of the upper right, Japanese input effectiveness can be improved further.

[0328] Moreover, in the letter key 26 to which "Y" was set, when said bar touch input is performed in the direction in which the alphabetic character is not displayed, as for said alphabetic character selection output means, it is desirable to choose and output one [at least] alphabetic character of "you" set up beforehand or the "yuu(s)."

[0329] Long contracted sounds, such as "****** (SYUU)" and "****** (SYOU) etc.", also have high frequency in Japanese. If it can input by one bar touch alter operation, the character string "YUU" for inputting this contracted sound, and "YOU, i.e., the input of three characters,", Japanese input effectiveness can be improved very much. Furthermore, by setting it as the letter key to which "Y" was set as above-mentioned, since "Y" is an alphabetic character surely used for a contracted sound input in a Roman alphabet input, even if not displayed on a keytop, an input operator can memorize it easily.

[0330] In addition, what is necessary is just to set up one side of "YUU" and "YOU" in the letter key to which "Y" was set, when there is only one although what is necessary is just to set "YUU" and "YOU" as each if there are the two bar touch input directions where the alphabetic character is not displayed. Under the present circumstances, another side of "YUU" and "YOU" may be set up in the direction which inputs a notation with the low frequency used among the alphabetic characters written by the keytop at the time of Japanese input mode etc., and it may be set up so that priority may be given over that notation etc. at the time of Japanese input mode and "YUU" and "YOU" may be inputted.

[0331] moreover, when said bar touch input is performed in the direction in which the alphabetic character is not displayed in the letter key 27 to which "K" was set, said alphabetic character selection output means In the letter key 29 to which one [at least] inner alphabetic character was chosen and outputted, and "T" was set "**" set up beforehand -- or -- "-- coming -- " -- When said bar touch input is performed in the direction in which the alphabetic character is not displayed, it is desirable to choose and output one [at least] alphabetic character of the "**" set up beforehand or the "**."

[0332] as mentioned above -- the second-sound turning point of the single kanji of Japanese phonetic reading -- "-- it comes and becomes - **, **, and **" in many cases. therefore -- a Roman alphabet input -- a consonant -- if these alphabetic characters inputted by two characters of + vowel can be inputted by one bar touch alter operation, Japanese input effectiveness can be improved further.

[0333] When said bar touch input is performed in the direction in which the alphabetic character is not

displayed, as for said alphabetic character selection output means, it is desirable to choose and output the alphabetic character beforehand set up according to the language of input mode. At the time of Japanese input mode, if the above geminated consonants, a syllabic nasal, a compound vowel, a contracted sound, etc. are set up, input effectiveness will improve, but if the alphabetic character ("an", "is", and "on" etc.) which can improve English input effectiveness at the time of English input mode, for example, words with high frequency, is set up as an alphabetic character inputted when said bar touch input is performed in the direction in which the alphabetic character is not displayed, English input effectiveness can improve. If similarly an alphabetic character is set up according to each language when French other than English, German, Italian, Russian, Latin, Chinese, etc. are constituted possible [an input], the input effectiveness of each language can be improved.

[0334] Moreover, the touch type key input equipment of this invention may constitute the alphabetic character inputted by said alphabetic character selection output means when said bar touch input is performed in the direction in which the alphabetic character is not displayed possible [registration of a user]. Thus, if constituted, by setting up an alphabetic character with high operating frequency in each user, it can be made the key input equipment suitable for each user, and input effectiveness can be improved more.

[0335] Here, at least two alphabet is displayed on said each letter key, respectively, and in the front face of each letter key, when the alphabet is displayed in the migration direction of the bar touch input distinguished with said input distinction means from the criteria location, it is desirable [said alphabetic character selection output means] to choose and output the alphabet. Since at least two alphabet is set as one letter key according to such this invention, if 13 letter keys are prepared at the maximum, the alphabet of 26 characters can be set up and inputted. For this reason, the number of letter keys can be lessened and can be easily included also in small devices, such as a portable telephone and PDA.

[0336] Moreover, when at least two kana alphabetic characters are displayed on said each letter key, respectively and the kana alphabetic character is displayed in the migration direction of a bar touch input in which said alphabetic character selection output means was distinguished from the criteria location with said input distinction means in the front face of each letter key, it may be characterized by choose and output the kana alphabetic character. According to such this invention, since kana alphabetic characters, such as a hiragana and katakana, are chosen directly and can be inputted, the count of alter operation of a key can be decreased compared with the Roman alphabet input which needs to input a consonant and a vowel, and input effectiveness can be improved.

[0337] A figure and the alphabet, or a kana alphabetic character is displayed on said letter key, respectively. Furthermore, said alphabetic character selection output means When the figure is displayed in the migration direction of the bar touch input distinguished with said input distinction means from the criteria location in the front face of each letter key When the figure is chosen and outputted and the alphabet or a kana alphabetic character is displayed, it may be characterized by choosing and outputting the alphabet or a kana alphabetic character. If the figure, and the alphabet or a kana alphabetic character is displayed on the letter key, since the input of a figure and the input of the alphabet or a kana alphabetic character can be performed, if it includes in a portable telephone, it can use also for applications, such as creation of e-mail, easily besides the alter operation of the usual telephone number.

[0338]

[Effect of the Invention] Since the alphabetic character in the location corresponding to the bar touch alter operation of the alphabetic character displayed on the keytop of each letter key is chosen and outputted according to invention according to claim 1, alter operation can be grasped intuitively and easily and input operability can be improved. Furthermore, since the alphabetic character displayed on each letter key can be checked by viewing in the case of alter operation, alter operation can be done simply and quickly. Moreover, since two or more alphabetic characters are set as one letter key and input classification ****** is made, the number of letter keys can be lessened, and it can include also in a small device easily, and can consider as the key input equipment which fitted very much the device carried and used.

[0339] According to invention according to claim 2, a maximum of eight kinds of alphabetic characters can be set as one letter key, and, therefore, a maximum of 96 characters can be set up, for example by 12 letter keys. For this reason, in addition to the alphabet of 26 characters the object for a Japanese Roman alphabet input, and for an English input, various kinds of alphabetic characters etc. can be set up and inputted into each letter key.
[0340] According to invention according to claim 3, since each key is collected compared with a thing which is made to the same key arrangement as a portable telephone, the ten key of a keyboard, a calculator, etc. for example, by which 12 letter keys are arranged at length or a horizontal single tier since it has 12 letter keys of 4x3, input operability can be improved. Moreover, this invention is easily applicable also to the device equipped with 12 keys from the first like a portable telephone. Moreover which can perform easily the input of a figure, and the input of the alphabet (a Roman alphabet input and English input) with a portable telephone etc., and can raise convenience, if it has 12 keys If the bar touch direction is set up in the four to 8 direction, balance with the bar touch direction which inputs as the number of alphabetic characters which can set up 48-96 alphabetic characters and can be set up, and is divided is good, and can input without a burden of a user.
[0341] Since the alphabetic character in the location corresponding to the bar touch alter operation of the alphabetic character displayed on the keytop of each letter key is chosen and outputted according to invention according to claim 4, alter operation can be grasped intuitively and easily and input operability can be improved.
[0342] According to invention according to claim 5, a figure, the alphabet, a notation, etc. can be inputted easily and an English input and the Roman alphabet input of Japanese using especially the alphabet can be performed easily. According to invention according to claim 6, a kana alphabetic character can be inputted further easily and it can respond to a request of the user who wishes especially a kana input.
[0343] Since the alphabet with high frequency can be inputted into an alphabetic character input in the bar touch input which goes with the down side according to invention according to claim 7, the operability at the time of a touch input with a pen etc. can be improved. Furthermore, since a figure and a notation can also be inputted by bar touch alter operation, it can also perform inputting a text including a figure or a notation etc. easily.
[0344] According to invention according to claim 8, the direction can be distinguished in the area which trichotomized the field of a keytop, since the comparatively large range which can be distinguished can be taken compared with the case where it sets up in the eight directions, gap of the migration direction for every operator etc. can be absorbed, and input operability can be improved.
[0345] According to invention according to claim 9, since a vowel with the highest operating frequency "A", "I", "U", "E", and "O" were set as the separate key also in Japanese or English, these alphabetic characters can be set up so that a key can be easily inputted only by carrying out touch actuation, and can improve the operability at the time of an input. Especially, a Roman alphabet input with vowel, very high input frequency can be performed efficiently.
[0346] Since the array according to a QWERTY array is realizable according to invention according to claim 10, the user who already grew familiar with the QWERTY array by the keyboard etc. can grasp the arrangement location of each alphabet easily, can input easily, and can improve the operability at the time of an input.
[0347] According to invention according to claim 11, since the alphabet is located in a line with the alphabetical order, the arrangement location of the alphabet can be grasped easily. Since it is the array especially used widely with the current portable telephone and many people are used, the operability at the time of an input can be improved.
[0348] Since the alphabetic character set up beforehand can be chosen and outputted when a bar touch input is performed in the direction in which the alphabetic character is not displayed according to invention according to claim 12, the alphabetic character which is not written by the keytop can also be inputted and the alphabetic character which can be inputted can be made [more].
[0349] According to invention according to claim 13, by using each of such alter operation properly,

since an alphabetic character can be chosen by the both-way bar touch alter operation other than the usual bar touch alter operation, even when the number of keys is the same, a twice as many alphabetic character as this can be set up and inputted. For this reason, without performing mode change actuation etc., more alphabetic characters can be inputted by easy actuation, and input operability can be improved.

[0350] According to invention according to claim 14, by using each of such alter operation properly, since an alphabetic character can be chosen by the right-turn and left-turn bar touch alter operation other than the usual bar touch alter operation, even when the number of keys is the same, a 3 times as many alphabetic character as this can be set up and inputted. For this reason, without performing mode change actuation etc., more alphabetic characters can be inputted by easy actuation, and input operability can be improved.

[0351] Since according to invention according to claim 15 not only the alphabet but kana alphabetic characters set up virtually, such as a hiragana and katakana, are chosen directly and can be inputted, the count of alter operation of a key can be decreased compared with the Roman alphabet input which needs to input a consonant and a vowel, and input effectiveness can be improved.

[0352] Since each alphabetic character can be inputted by performing bar touch alter operation using the input area which consists of two or more letter keys according to invention according to claim 16, it can also input now not seeing a letter key each time, and input operability can be improved further.

[0353] Since each alphabetic character can be inputted by performing bar touch alter operation using the input area which consists of two or more letter keys according to invention according to claim 17, it can also input now not seeing a letter key each time, and input operability can be improved further.

[0354] According to invention according to claim 18, it can treat like a common keyboard only by sticking a keyboard sheet on touch input detection area, and carrying out a predetermined setup to an input distinction means, and an alphabetic character input can be simplified. Moreover, since a keyboard sheet can also be removed easily, a setting change of the input approach is made at a handwriting input if needed.

[0355] According to invention according to claim 19, since a letter key is displayed on a screen, it can treat like a common keyboard only by carrying out a predetermined setup to an input distinction means, and an alphabetic character input can be simplified. Moreover, when the whole screen is touch input detection area, it can ******** by making it not display a letter key, using a screen widely.

[Translation done.]

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view showing the touch type key input equipment of the 1st operation gestalt concerning this invention.
[Drawing 2] It is the top view showing the keyboard sheet in said operation gestalt.
[Drawing 3] It is the block diagram showing the internal configuration of the touch type key input equipment in said operation gestalt.
[Drawing 4] It is drawing showing the migration direction at the time of the bar touch input in said operation gestalt.
[Drawing 5] It is drawing showing the bar touch actuation at the time of the bar touch input in said operation gestalt.
[Drawing 6] It is drawing showing the bar touch input in said operation gestalt.
[Drawing 7] It is drawing showing the array only for English in the keyboard sheet of said operation gestalt.
[Drawing 8] It is drawing showing the modification of the array in the keyboard sheet of said operation gestalt.
[Drawing 9] It is drawing showing the migration direction at the time of the bar touch input in the 2nd operation gestalt concerning this invention.
[Drawing 10] It is drawing showing the bar touch input in said 2nd operation gestalt.
[Drawing 11] It is the top view showing the touch type key input equipment of the 3rd operation gestalt concerning this invention.
[Drawing 12] It is drawing showing the kana mode array in said 3rd operation gestalt.
[Drawing 13] It is drawing showing the alphabet mode array in the software keyboard of said 3rd operation gestalt.
[Drawing 14] It is drawing showing the figure mode array in the software keyboard of said 3rd operation gestalt.
[Drawing 15] It is drawing showing the symbolic mode array in the software keyboard of said 3rd operation gestalt.
[Drawing 16] It is the mimetic diagram showing the kana mode array in the letter key of said 3rd operation gestalt.
[Drawing 17] It is the mimetic diagram showing the array of the virtual vowel in the letter key of said 3rd operation gestalt.
[Drawing 18] It is the mimetic diagram showing the array of the virtual long vowel in the letter key of said 3rd operation gestalt.
[Drawing 19] It is drawing showing the alter operation in said 3rd operation gestalt.
[Drawing 20] It is drawing showing the alter operation in said 3rd operation gestalt.
[Drawing 21] It is drawing showing the alter operation in said 3rd operation gestalt.
[Drawing 22] It is drawing showing the alter operation of the short sentence in said 3rd operation gestalt.

[Drawing 23] It is drawing showing the modification of the array in the software keyboard of said 3rd operation gestalt.
[Drawing 24] It is drawing showing the command array in the software keyboard of said 3rd operation gestalt.
[Drawing 25] It is the top view showing the keyboard sheet in the 4th operation gestalt.
[Drawing 26] It is drawing showing the migration direction at the time of the bar touch input in said 4th operation gestalt.
[Drawing 27] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 28] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 29] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 30] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 31] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 32] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 33] It is the mimetic diagram showing the array of the virtual vowel in the letter key of said 4th operation gestalt.
[Drawing 34] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 35] It is drawing showing the alter operation in said 4th operation gestalt.
[Drawing 36] It is drawing showing the alter operation at the time of the alphabet input in said 4th operation gestalt.
[Drawing 37] It is drawing showing the alter operation at the time of the alphabet input in said 4th operation gestalt.
[Drawing 38] It is the perspective view showing the touch type key input equipment of the 5th operation gestalt concerning this invention.
[Drawing 39] It is the top view showing the keyboard sheet in said 5th operation gestalt.
[Drawing 40] It is the block diagram showing the internal configuration of the touch type key input equipment in said 5th operation gestalt.
[Drawing 41] It is drawing showing the migration direction at the time of the bar touch input in said 5th operation gestalt.
[Drawing 42] It is drawing showing the bar touch actuation at the time of the bar touch input in said 5th operation gestalt.
[Drawing 43] It is drawing showing the bar touch input in said 5th operation gestalt.
[Drawing 44] It is drawing showing the bar touch input in said 5th operation gestalt.
[Drawing 45] It is the top view showing the touch type key input equipment of the 6th operation gestalt concerning this invention.
[Drawing 46] It is drawing showing the alter operation in the 6th operation gestalt.
[Drawing 47] It is the top view showing the touch type key input equipment of the 7th operation gestalt concerning this invention.
[Drawing 48] It is drawing showing the alter operation in the 7th operation gestalt.
[Drawing 49] It is the top view showing Key Caps in the touch type key input equipment of the 8th operation gestalt concerning this invention.
[Drawing 50] It is drawing showing the alter operation in the 8th operation gestalt.
[Drawing 51] It is the top view showing the keyboard sheet in the touch type key input equipment of the 9th operation gestalt concerning this invention.
[Drawing 52] It is drawing showing the example of a bar touch input in the 9th operation gestalt.
[Drawing 53] It is drawing showing the example of a both-way bar touch input in the 9th operation gestalt.
[Drawing 54] It is drawing showing the example of a both-way bar touch input in the 9th operation gestalt.
[Drawing 55] It is drawing showing the example of a left-turn bar touch input in the 9th operation gestalt.
[Drawing 56] It is drawing showing the example of a right-turn bar touch input in the 9th operation

gestalt.
[Drawing 57] It is the top view showing the keyboard sheet in the touch type key input equipment of the 10th operation gestalt concerning this invention.
[Drawing 58] It is the top view showing the imagination input area in the 10th operation gestalt.
[Drawing 59] It is the top view showing the bar touch alter operation for area in the 10th operation gestalt.
[Drawing 60] It is the top view showing the keyboard sheet in the touch type key input equipment of the 11th operation gestalt concerning this invention.
[Drawing 61] It is the top view showing the bar touch alter operation for area in the 11th operation gestalt.
[Drawing 62] It is the top view showing Key Caps in the modification of this invention.
[Drawing 63] It is the top view showing Key Caps in the modification of this invention.
[Drawing 64] It is the top view showing Key Caps in the modification of this invention.
[Drawing 65] It is the top view showing Key Caps in the modification of this invention.
[Drawing 66] It is drawing showing the key input train in the modification of this invention.
[Drawing 67] It is the top view showing Key Caps in the modification of this invention.
[Drawing 68] It is the top view showing Key Caps in the modification of this invention.
[Drawing 69] It is the top view showing Key Caps in the modification of this invention.
[Drawing 70] It is the top view showing Key Caps in the modification of this invention.
[Drawing 71] It is the top view showing Key Caps in the modification of this invention.
[Drawing 72] It is the top view showing Key Caps in the modification of this invention.
[Drawing 73] It is the top view showing Key Caps in the modification of this invention.
[Drawing 74] It is the top view showing Key Caps in the modification of this invention.
[Drawing 75] It is drawing showing the relation of the key input actuation and the input-statement character in other modifications of this invention.
[Drawing 76] It is drawing showing the example of an input in drawing 75 .
[Drawing 77] It is drawing showing other examples of an input in drawing 75 .
[Description of Notations]
1 11,211 Touch type key input equipment
2 12 Body
3 13 Liquid crystal screen
4 Touch Input Detection Area
5, 5A, 5C Keyboard sheet
6 Microphone
7 Loudspeaker
15, 15B, 15C Software keyboard
21-32 Letter key
51-65 Function key
71 Touch Type Input Means
72 Input Distinction Means
73 Alphabetic Character Selection Output Means
101 The Direction of Upper Left as a Migration Direction
102 Above [as a Migration Direction]
103 The Direction of Upper Right as a Migration Direction
104 Left as a Migration Direction
105 Right as a Migration Direction
106 The Direction of Lower Left as a Migration Direction
107 Down [as a Migration Direction]
108 The Direction of Lower Right as a Migration Direction
121-135 Letter key
221-235 Letter key

321-332 Letter key
302 Above
305 The Direction of Lower Left
306 The Direction of 2nd Lower Left
307 Down
308 The Direction of 2nd Lower Right
309 The Direction of Lower Right
501-503 Input area

[Translation done.]

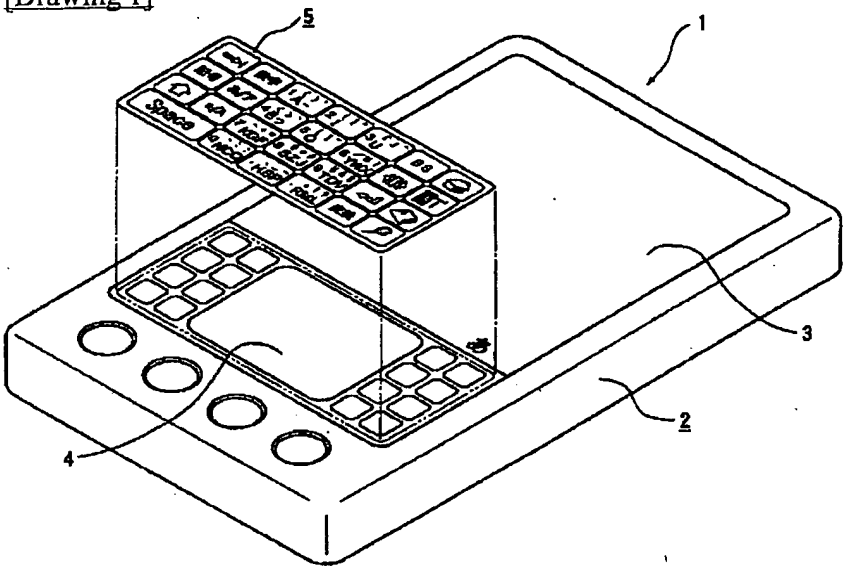
* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

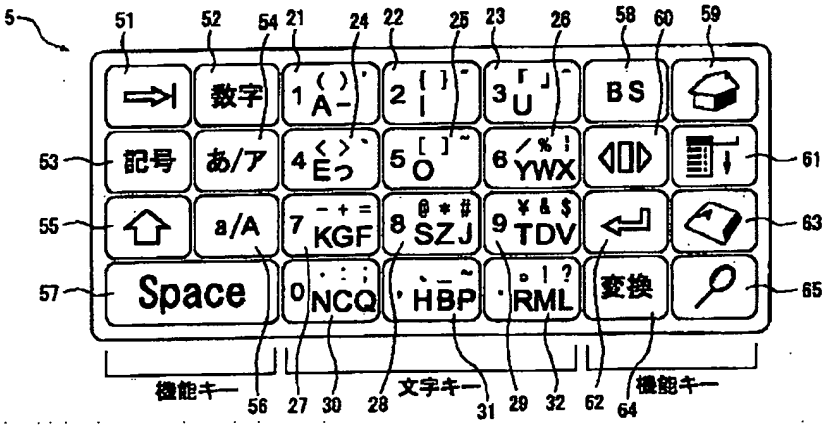
DRAWINGS

[Drawing 1]

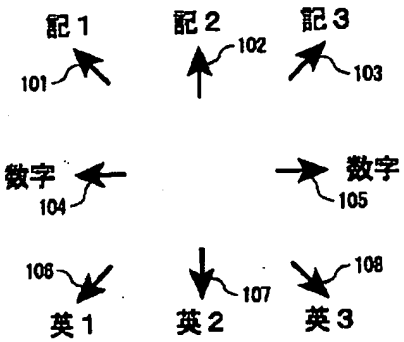


[Drawing 2]

標準配列（日英兼用）



[Drawing 4]



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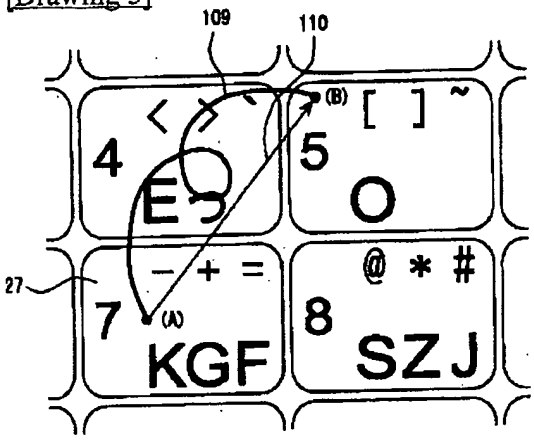

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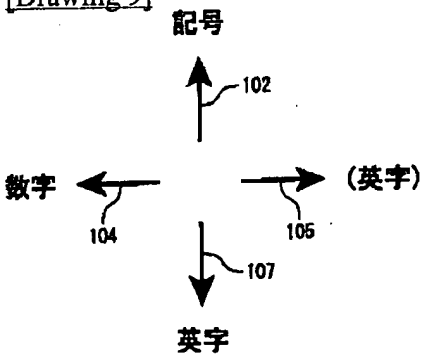
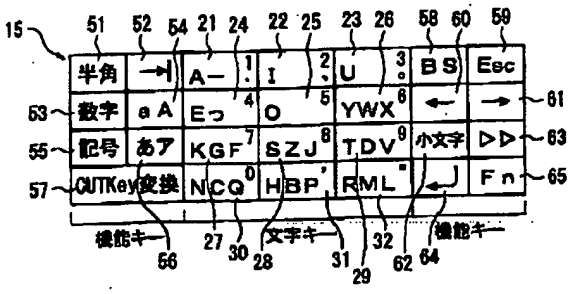
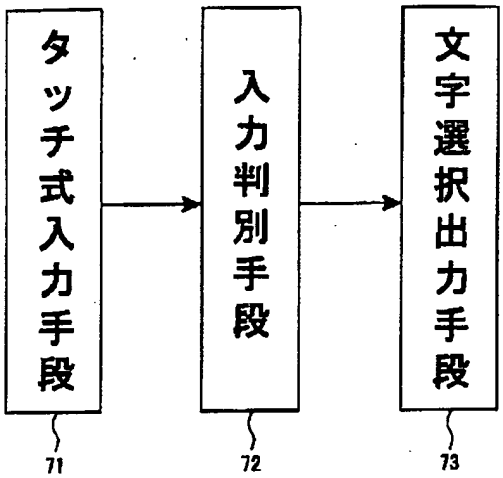


[Drawing 12]

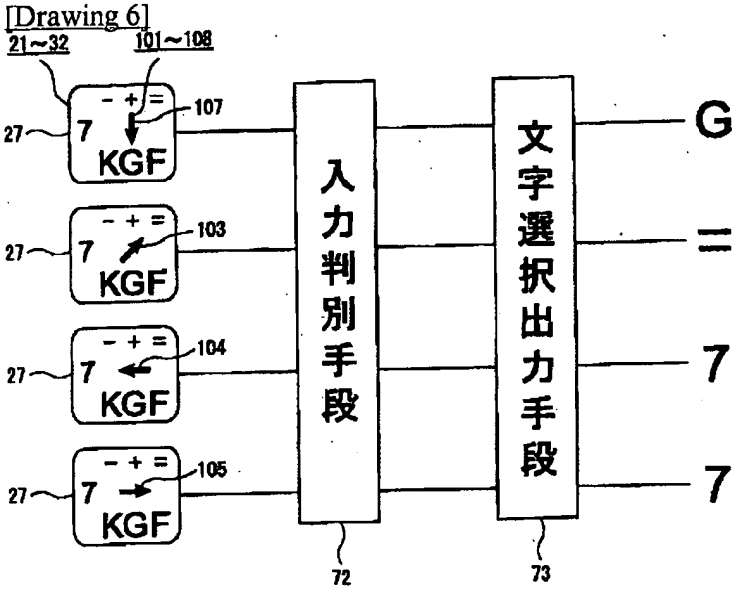
かなモード配列



[Drawing 3]

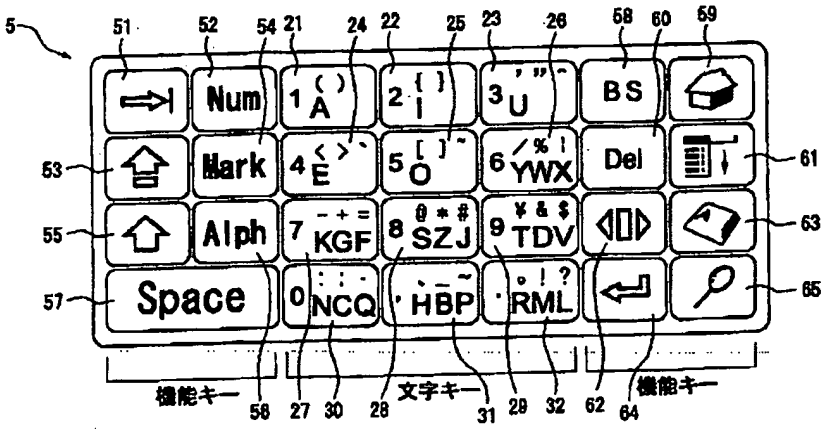


[Drawing 6]

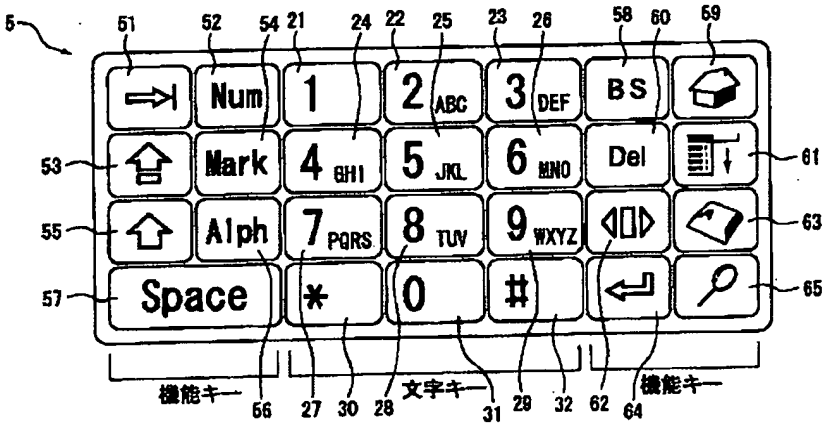


[Drawing 7]

英語専用配列

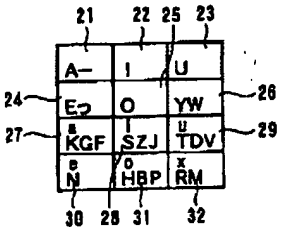


[Drawing 8]



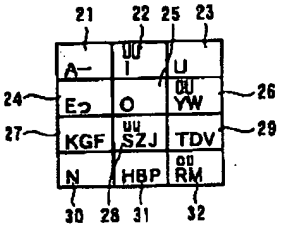
[Drawing 17]

仮想母音

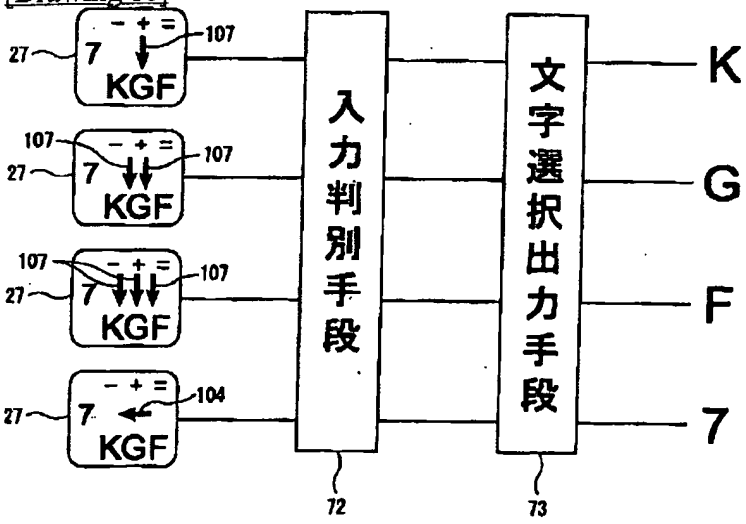


[Drawing 18]

仮想長母音



[Drawing 10]



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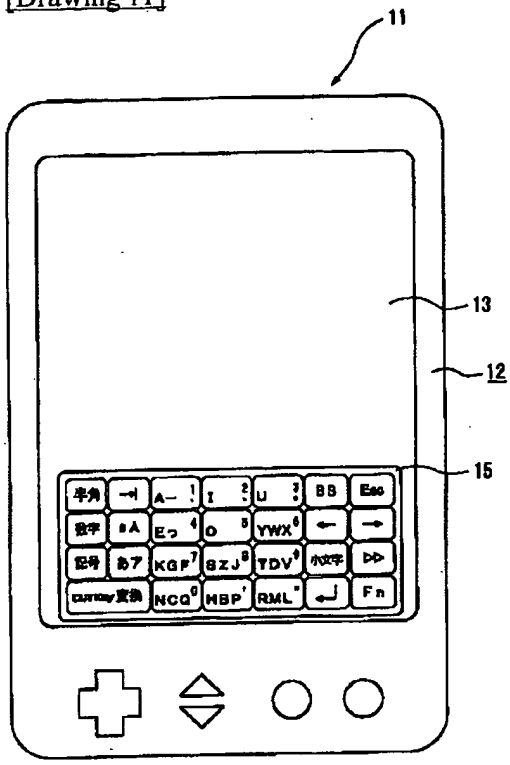
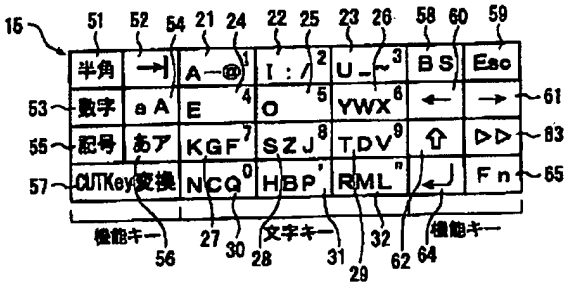


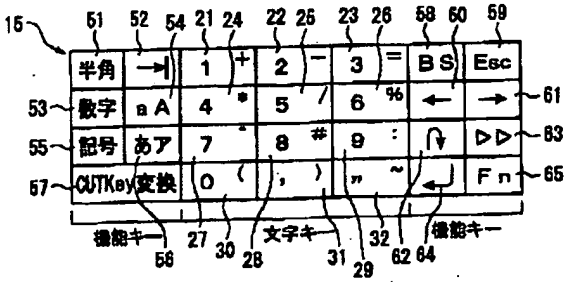
[Drawing 13]

英字モード配列



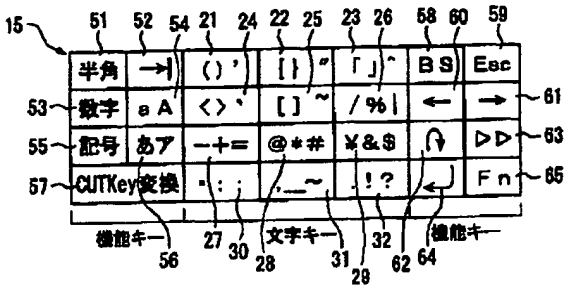
[Drawing 14]

数字モード配列

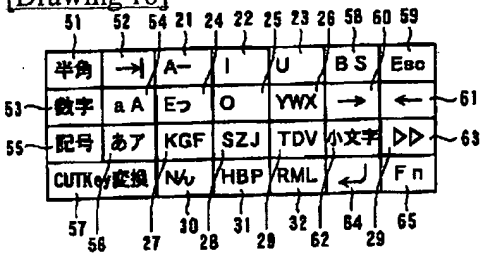


[Drawing 15]

記号モード配列



[Drawing 16]



[Drawing 30]

・頻度の高いかな、ま行などの短縮入力

＊Eメールは今の話題を伝播する

(E ME-R H IMA N WADA WO DEPA SR)

[Drawing 19]

・ま行・わ行‥‥「M」と「W」は、１回のタップの次に仮想母音で入力します。

＊みつもり(MiTUMoRI)　＊わをかく(WaWoKAKU)

・濁音・半濁音‥濁音は１回、半濁音は２回のタップの次に仮想母音で入力します。

＊げんだい(GeNDaI)　＊だんぺん(DaNPPeN)

・母音の代行‥‥濁音と仮想母音が同じキーの場合、母音を「x」で代行します。

＊ぜんじつ(SeNZxTU)　＊がんばん(GxNPPxN)

・拗音の濁音‥‥拗音の濁音などは、子音と「Y」の次に仮想母音で入力します。

＊しゅじゅ(SYUZYu)　＊ピュア(PPYuA)

・拗音の長音‥‥頻度の高い拗音の長音は、「Y」の次に仮想長母音で入力します。

清音は「I=UU」、「Y=OU」、濁音などは「S=uu」、「R=ou」を使います。

【清音】・きゅう(KYI=KYUU)　・きょう(KYY=KYOU)

【濁音】・ぎゅう(GYS=GYuu)　・ぎょう(GYR=GYou)

【ま行】・みゅう(MYS=MYuu)　・みょう(MYR=MYou)

＊りゅうひょう(RYIHYY)　＊じゅうぎょう(ZYSGYR)

[Drawing 20]

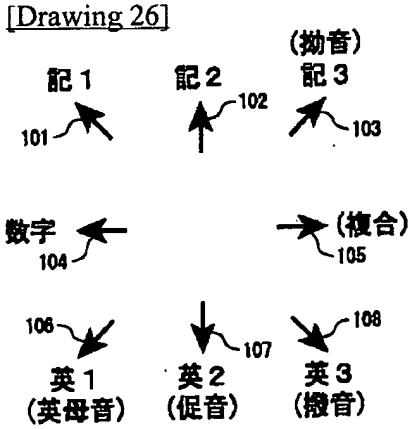
５０音の入力表（下線は短縮入力）

	あ段	い段	う段	え段	お段
あ行	あ A ぁ ⇧A	い I ぃ ⇧I	う U う ⇧U	え E え ⇧E	お O お ⇧O
か行	か KA カ ⇧KA	き KI	く KU	け KE ケ ⇧KE	こ KO ⇧
さ行	さ SA	し SI	す SU	せ SE	そ SO
た行	た TA	ち TI	つ TU っ ⇧TU	て TE	と TO
な行	な NA	に NI	ぬ NU	ね NE	の NO
は行	は HA ふぁFFFA FFx	ひ HI ふぃFFFI FFi	ふ HU	へ HE ふぇFFFE FFe	ほ HO ふぉFFFO FFo
ま行	ま MMA Ma	み MMI Mi	む MMU Mu	め MME Me	も MMO Mo
や行	や YA ゃ ⇧YA	—	ゆ YU ゅ ⇧YU	—	よ YO ょ ⇧YO
ら行	ら RA	り RI	る RU	れ RE	ろ RO
わ行	わ WWA Wa わ⇧WWA ⇧Wa	うぃ WWI Wi	—	うぇ WWE We	を WWO Wo
が行	が GGA Gx	ぎ GGI Gi	ぐ GGU Gu	げ GGE Go	ご GGO Go
ざ行	ざ ZZA Za	じ ZZI Zx	ず ZZU Zu	ぜ ZZE Ze	ぞ ZZO Zo
だ行	だ DDA Da	ぢ DDI Di	づ DDU Dx	で DDE De	ど DDO Do
ば行	ば BBA Ba	び BBI Bi	ぶ BBU Bu	べ BBE Be	ぼ BBO Bx
ぱ行	ぱ PPPA PPa	ぴ PPPI PPi	ぷ PPPU PPu	ぺ PPPE PPe	ぽ PPPO PPx
ヴ	ヴぁ VVVA VVa	ヴぃ VVVI VVi	ヴぅ VVVU VVx	ヴぇ VVVE VVe	ヴぉ VVVO VVo
ん	ん NN(撥音の「NN」は、母音や「N」、「Y」、「W」の前以外は１回タップでもよい)				

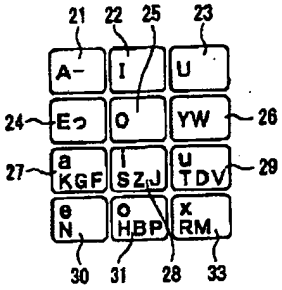
＊短縮入力などを取り入れたので、一般のローマ字入力表とは多少異なる。

＊入力表のローマ字は、タップするキーと回数、入力するそれぞれの文字で表す。

[Drawing 26]



[Drawing 33]



[Drawing 21]

拗音の入力表（下線は短縮入力）

	(きゃ)	(きゅ)	(きぇ)	(きょ)	長音(きゅう)	長音(きょう)
か行	きゃ KYA	きゅ KYU	きぇ KYE	きょ KYO	きゅう KYUU KYI	きょう KYOU KYY
さ行	しゃ SYA	しゅ SYU	しぇ SYE	しょ SYO	しゅう SYUU SYI	しょう SYOU SYY
た行	ちゃ TYA	ちゅ TYU	ちぇ TYE	ちょ TYO	ちゅう TYUU TYI	ちょう TYOU TYY
な行	にゃ NYA	にゅ NYU	にぇ NYE	にょ NYO	にゅう NYUU NYI	にょう NYOU NYY
は行	ひゃ HYA	ひゅ HYU	ひぇ HYE	ひょ HYO	ひゅう HYUU HYI	ひょう HYOU HYY
ま行	みゃ MMYA MYa	みゅ MMYU MYu	みぇ MMYE MYe	みょ MMYO MYo	みゅう MMYUU MYS	みょう MMYOU MYR
や行	や YA	ゆ YU	—	よ YO	ゆう YUU YI	よう YOU YE
ら行	りゃ RYA	りゅ RYU	りぇ RYE	りょ RYO	りゅう RYUU RYI	りょう RYOU RYY
が行	ぎゃ GGYA GYa	ぎゅ GGYU GYu	ぎぇ GGYE GYe	ぎょ GGYO GYo	ぎゅう GGYUU GYS	ぎょう GGYOU GYR
ざ行	じゃ ZZYA JJJA ZYa	じゅ ZZYU JJJU ZYu	じぇ ZZYE JJJE ZYe	じょ ZZYO JJJO ZYo	じゅう ZZYUU JJJUU ZYS	じょう ZZYOU JJJOU ZYR
だ行	ぢゃ DDYA DYa	ぢゅ DDYU DYu	ぢぇ DDYE DYe	ぢょ DDYO DYo	ぢゅう DDYUU DYS	ぢょう DDYOU DYR
ば行	びゃ BBYA BYa	びゅ BBYU BYu	びぇ BBYE BYe	びょ BBYO BYo	びゅう BBYUU BYS	びょう BBYOU BYR
ぱ行	ぴゃ PPPYA PPYa	ぴゅ PPPYU PPYu	ぴぇ PPPYE PPYe	ぴょ PPPYO PPYo	ぴゅう PPPYUU PPYS	ぴょう PPPYOU PPYR

＊短縮入力の仮想長母音は「I=UU」、「Y=OU」、「S=uu」、「R=ou」で表す。

[Drawing 22]

短文の入力例（細下線はパータッチ、太下線は短縮入力）

＊国境の長いトンネルを抜けると雪国であった。

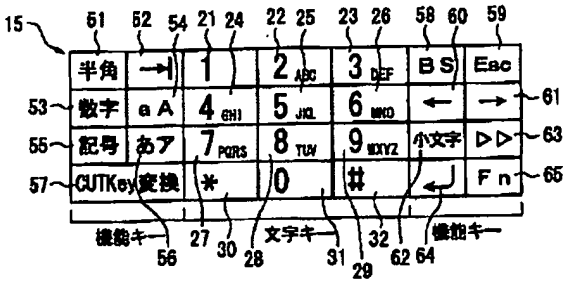
KOKKYOUNONAGAITONNNERUWONUKERUTOYUKIGUNIDEATTA。

（パソコン：47回）

KO2KYYNONAGIITONNNERUWONUKERUTOYUKIGUNIDeA2TA。

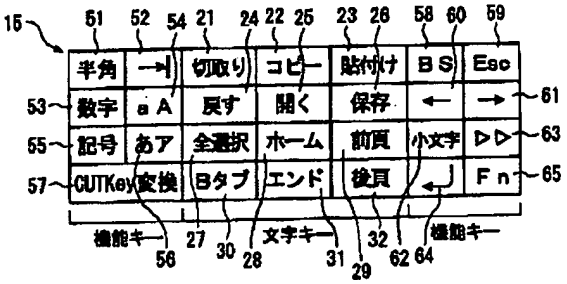
（本実施形態：46回）

[Drawing 23]



[Drawing 24]

コマンド配列



[Drawing 27]

母音キーのバータッチ

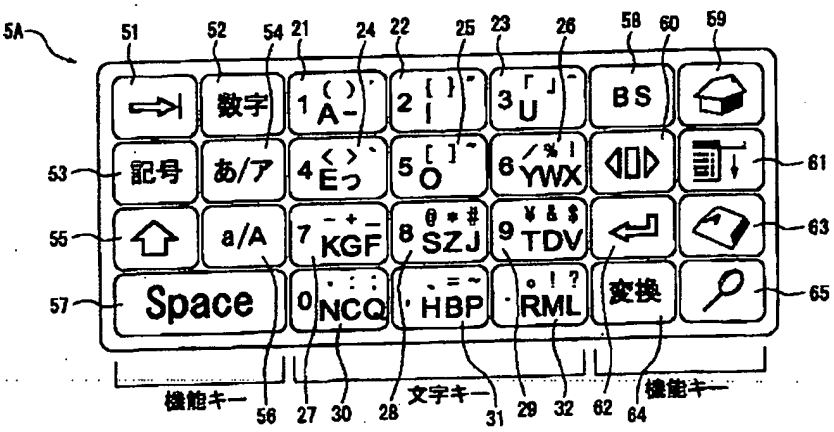
バー / キー	英母音	促音	撥音	複合	拗音
					* 103
21 A	A	aっ	aん	ai	ya
22 I	I	iっ	iん	ui	"
23 U	U	uっ	uん	uu	yu
24 E	E	eっ	eん	ei	ye
25 O	O	oっ	oん	ou	yo

106 107 108 105

「/」は、かな入力で使わない記号の代替。

[Drawing 25]

標準配列（日英兼用）



[Drawing 28]

子音キーのバータッチ

	キー＼バー	子音(かな・英字) ↙ (106)	↓ (107)	↘ (108)	その他 → (105)	↗* (103)
25	Y	Y	W	X	you	yuu
27	K	K	G	F	く	き
28	S	S	Z	J	[す]	#
29	T	T	D	V	つ	ち
30	N	N	C	Q	[の]	;
31	H	H	B	P	[は]	～
32	R	R	M	L	[る]	?

＊「↗*」は、かな入力で使わない記号の代替。
＊[す]、[の]、[は]、[る]は頻度の高いかな。

[Drawing 29]

・促音「っ」、撥音「ん」の短縮入力
＊決算(KE SA)　＊一般(I PA)　＊判断(HA DA)

・複合母音「ai」、「ui」、「uu」、「ei」、「ou」の短縮入力
＊経済(KE ZA)　＊推定(SI TE)　＊通報(TU HO)

・か行「く」、「き」、た行「つ」、「ち」の短縮入力
＊目的(MOK TEK)　＊確実(KAK ZIT)　＊一抹(IT MAT)

・拗音「ya」、「yu」、「yo」、「yuu」、「you」の短縮入力
＊御者(GO SA)　＊友情(Y ZY)　＊要求(Y KY)

[Drawing 34]

・ま行・わ行‥‥「M」と「W」は、１回タップしてから仮想母音を入力する。
＊みつもり(Mi I Mo RI)　＊わをかく(Wa Wo KA K)

・子音の濁音‥‥子音の濁音は、１回タップしてから仮想母音を入力する。
＊げたばこ(Ge TA Ba KO)　＊できごと(De K Go TO)

・母音の代行‥‥濁音と仮想母音が同じキーの場合、母音を「x」で代行する。
＊がくだん(Gx K DA)　＊じつぶつ(Zx I Bu I)

[Drawing 35]

・【文例】

＊日々の雑事を忘れ、まだ見ぬ北欧の町や村を訪ねてみたい

(HiBiN ZaTZxWo WaSURE, MaDaMiNU HOKON MaTAMuRAWo TAZuNETEMiTA)

[Drawing 36]

母音キーの入力

	キー＼タッチ	ピンタッチ ・	バータッチ ↙	↓	↘	→
21	A	a	a	an	as	at
22	I	i	i	is	in	it
23	U	u	u	up	us	ul
24	E	e	e	ea	er	es
25	O	o	o	on	of	off

[Drawing 46]

英１

101

108

英２

[Drawing 31]

５０音の入力表（矢印はバータッチ入力）

	あ段	い段	う段	え段	お段
あ行	あ A ぁ ⇧A	い I ぃ ⇧I	う U ぅ ⇧U	え E ぇ ⇧E	お O ぉ ⇧O
か行	か KA カ ⇧KA	き KI K	く KU K	け KE ケ ⇧KE	こ KO
さ行	さ SA	し SI	す SU	せ SE	そ SO
た行	た TA	ち TI T	つ TU T っ ⇧TU ⇧T	て TE	と TO
な行	な NA	に NI	ぬ NU	ね NE	の NO
は行	は HA ふぁ FFFA FA	ひ HI ふぃ FFFI FI	ふ HU	へ HE ふぇ FFFE FE	ほ HO ふぉ FFFO FO
ま行	ま MMA MA	み MMI MI	む MMU MU	め MME ME	も MMO MO
や行	や YA A ゃ ⇧YA ⇧A	—	ゆ YU U ゅ ⇧YU ⇧U	—	よ YO O ょ ⇧YO ⇧O
ら行	ら RA	り RI	る RU	れ RE	ろ RO
わ行	わ WWA WA わ⇧WWA ⇧WA	うぃ WWI WI	—	うぇ WWE WE	を WWO WO
が行	が GGA GA	ぎ GGI GI	ぐ GGU GU	げ GGE GE	ご GGO GO
ざ行	ざ ZZA ZA	じ ZZI ZI	ず ZZU ZU	ぜ ZZE ZE	ぞ ZZO ZO
だ行	だ DDA DA	ぢ DDI DI	づ DDU DU	で DDE DE	ど DDO DO
ば行	ば BBA BA	び BBI BI	ぶ BBU BU	べ BBE BE	ぼ BBO BO
ぱ行	ぱ PPPA PA	ぴ PPPI PI	ぷ PPPU PU	ぺ PPPE PE	ぽ PPPO PO
ヴ	ヴぁ VVVA VA	ヴぃ VVVI VI	ヴぅ VVVU VU	ヴぇ VVVE VE	ヴぉ VVVO VO
ん	ん NN(撥音の「NN」は、母音や「N」、「Y」、「W」の前以外は１回タップでもよい)				

＊バータッチや短縮入力などを取り入れたので、一般のローマ字入力とは多少異なる。

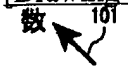
＊入力表のローマ字は、タップするキーと回数、入力するそれぞれの文字で表す。

[Drawing 37]

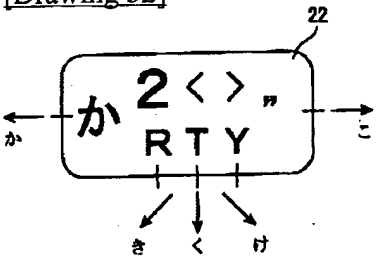
子音キーの入力

	タッチ / キー	ピンタッチ	バータッチ			
		・	↙	↓	↘	→
26	Y	y	y	w	x	you
27	K	k	k	g	f	for
28	S	s	s	z	j	so
29	T	t	t	d	v	to
30	N	n	n	c	q	no
31	H	h	h	b	p	he
32	R	r	r	m	l	me

[Drawing 48]



[Drawing 52]



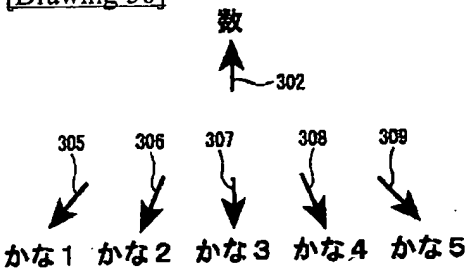
[Drawing 32]

拗音の入力表（矢印はパータッチ入力）

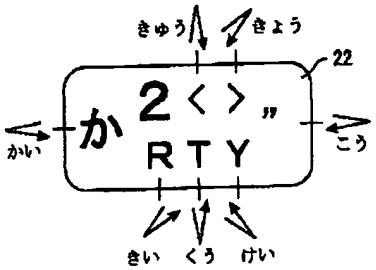
	(きゃ)	(きゅ)	(きぇ)	(きょ)	(きゅう)	(きょう)
か行	きゃ KYA KA	きゅ KYU KU	きぇ KYE KE	きょ KYO KO	きゅう KYUU KY	きょう KYOU KY
さ行	しゃ SYA SA	しゅ SYU SU	しぇ SYE SE	しょ SYO SO	しゅう SYUU SY	しょう SYOU SY
た行	ちゃ TYA TA	ちゅ TYU TU	ちぇ TYE TE	ちょ TYO TO	ちゅう TYUU TY	ちょう TYOU TY
な行	にゃ NYA NA	にゅ NYU NU	にぇ NYE NE	にょ NYO NO	にゅう NYUU NY	にょう NYOU NY
は行	ひゃ HYA HA	ひゅ HYU HU	ひぇ HYE HE	ひょ HYO HO	ひゅう HYUU HY	ひょう HYOU HY
ま行	みゃ MMYA MA	みゅ MMYU MU	みぇ MMYE ME	みょ MMYO MO	みゅう MMYUU MY	みょう MMYOU MY
や行	や YA A	ゆ YU U	—	よ YO O	ゆう YUU Y	よう YOU Y
ら行	りゃ RYA RA	りゅ RYU RU	りぇ RYE RE	りょ RYO RO	りゅう RYUU RY	りょう RYOU RY
が行	ぎゃ GGYA GA	ぎゅ GGYU GU	ぎぇ GGYE GE	ぎょ GGYO GO	ぎゅう GGYUU GY	ぎょう GGYOU GY
ざ行	じゃ ZZYA JJJA ZA JA	じゅ ZZYU JJJU ZU JU	じぇ ZZYE JJJE ZE JE	じょ ZZYO JJJO ZO JO	じゅう ZZYUU JJJUU ZY JY	じょう ZZYOU JJJOU ZY JY
だ行	ぢゃ DDYA DA	ぢゅ DDYU DU	ぢぇ DDYE DE	ぢょ DDYO DO	ぢゅう DDYUU DY	ぢょう DDYOU DY
ば行	びゃ BBYA BA	びゅ BBYU BU	びぇ BBYE BE	びょ BBYO BO	びゅう BBYUU BY	びょう BBYOU BY
ぱ行	ぴゃ PPPYA PA	ぴゅ PPPYU PU	ぴぇ PPPYE PE	ぴょ PPPYO PO	ぴゅう PPPYUU PY	ぴょう PPPYOU PY

＊パータッチ入力の拗音は「A=ya」、「U=yu」、「O=yo」、「Y=yuu」、「Y=you」で表す。

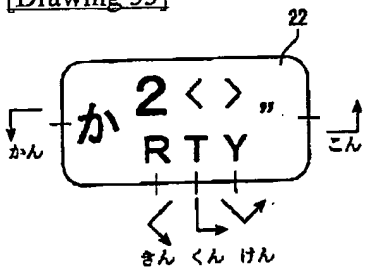
[Drawing 50]



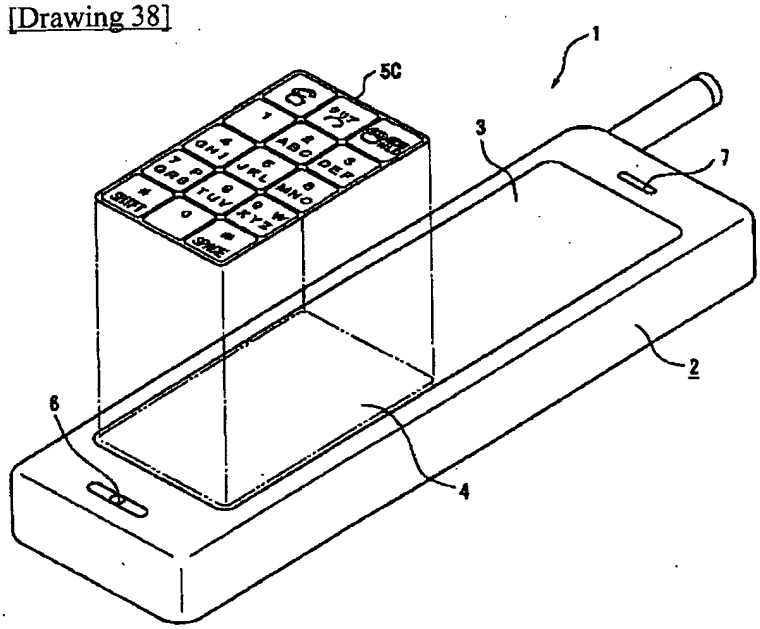
[Drawing 53]



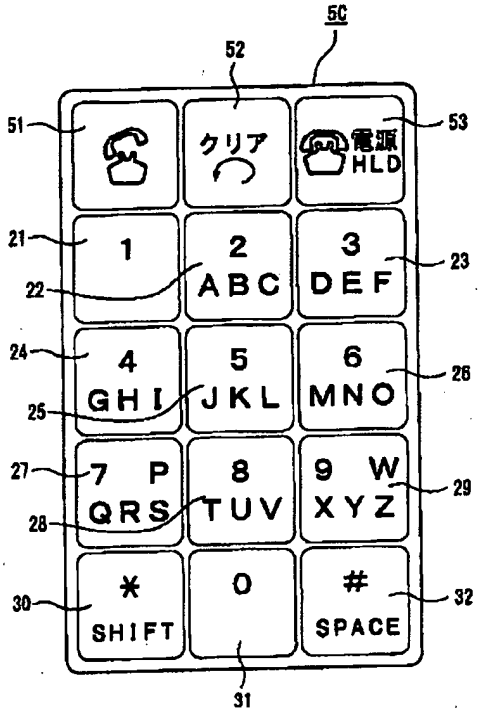
[Drawing 55]



[Drawing 38]



[Drawing 39]



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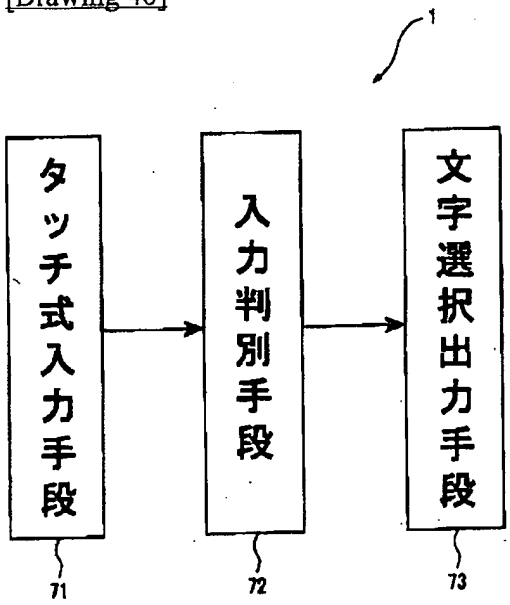
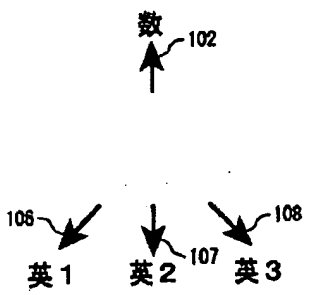
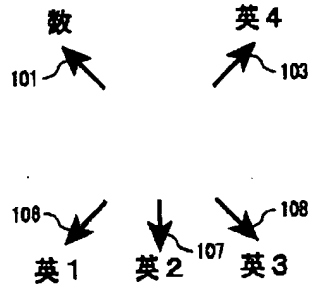


[Drawing 41]

(A)



(B)



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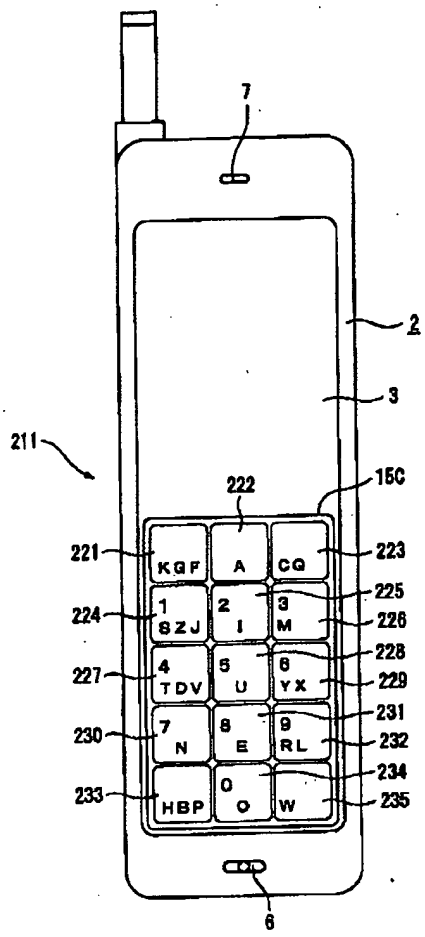
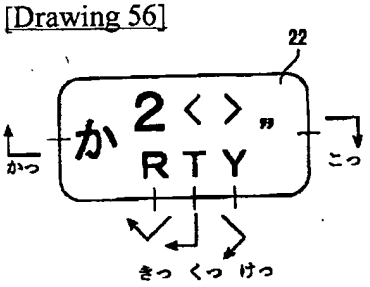
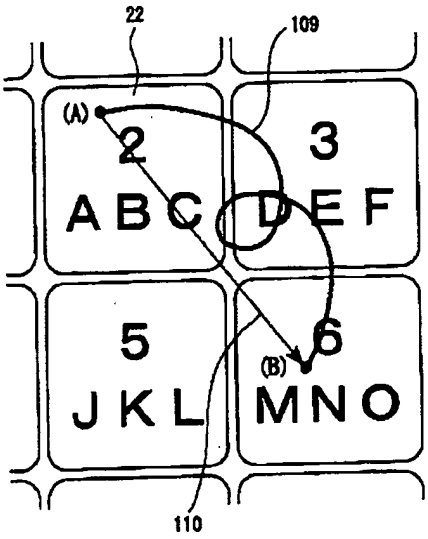


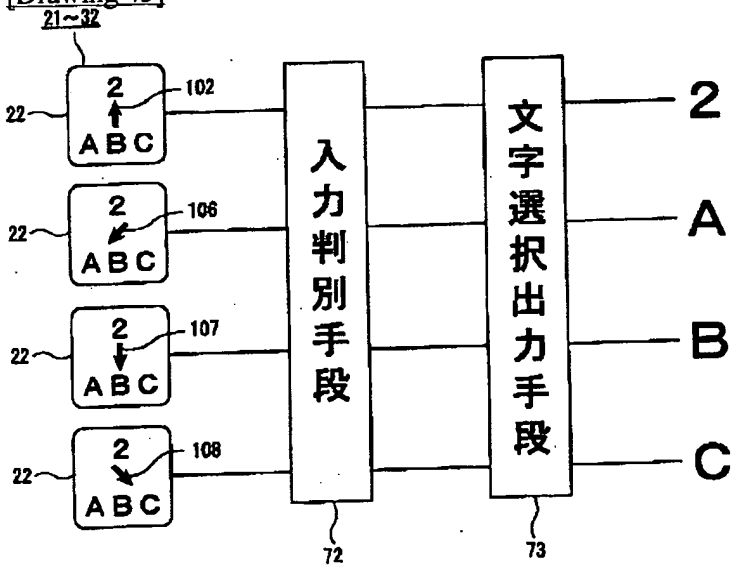
[Drawing 56]



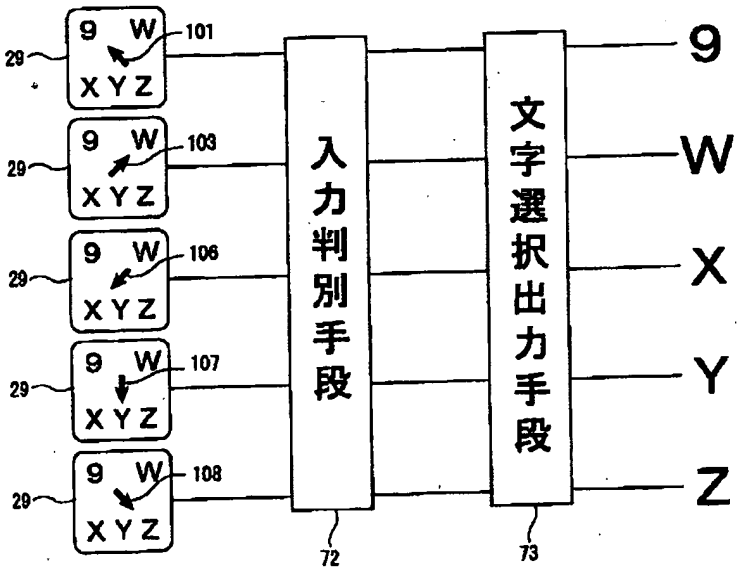
[Drawing 42]



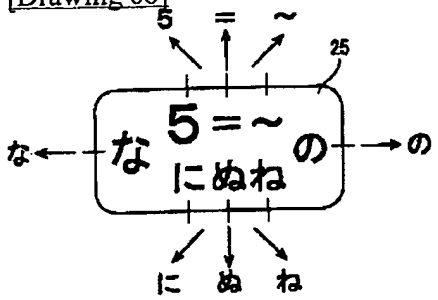
[Drawing 43]



[Drawing 44]



[Drawing 66]



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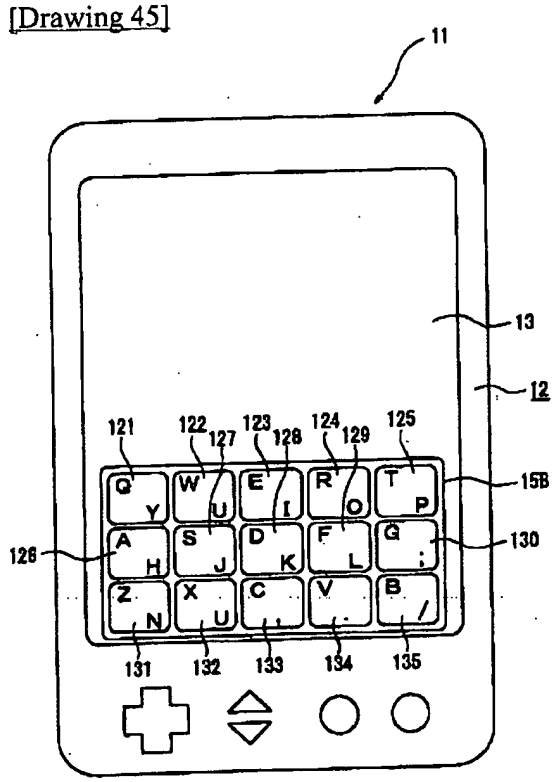
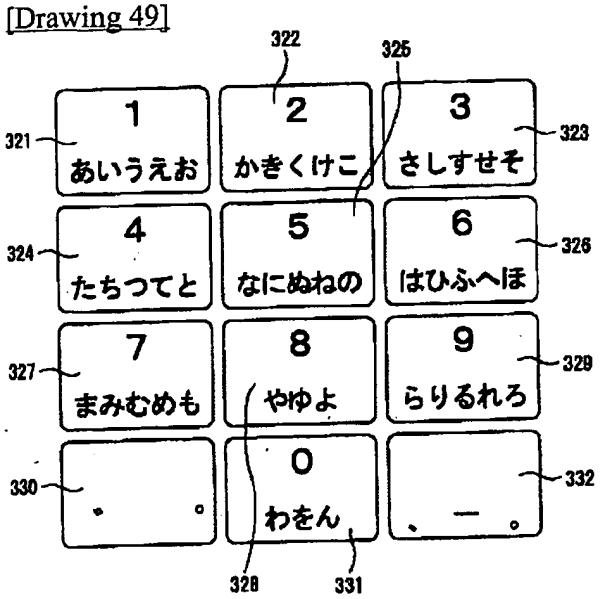
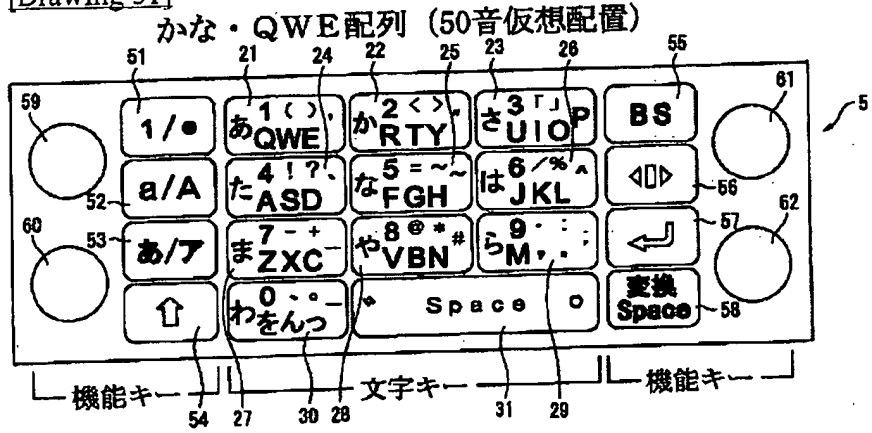


[Drawing 49]



[Drawing 51]

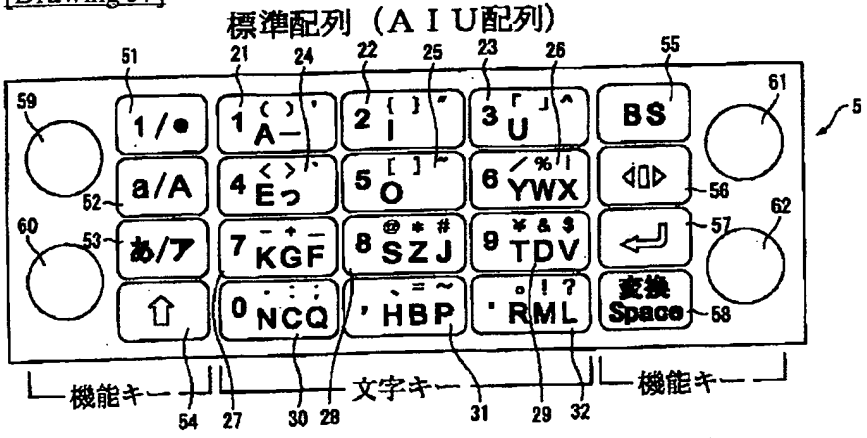


[Drawing 54]

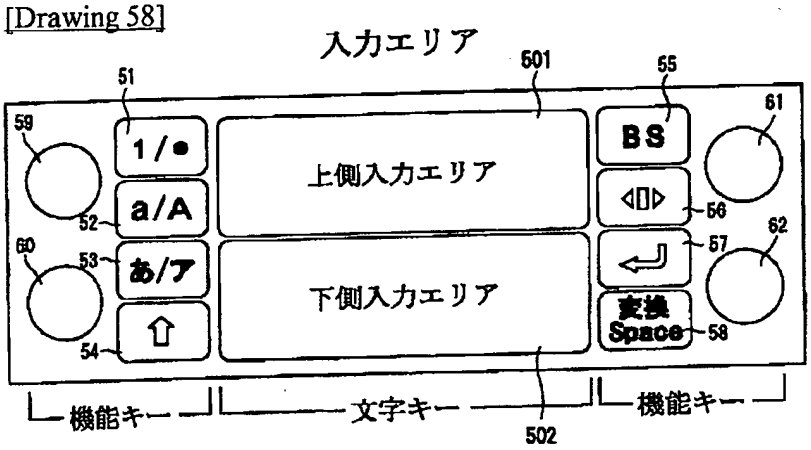
往復パータッチによる長音の入力表
（濁音・半濁音は、往復パータッチの後、同じキーのタップで入力）

パー / キー	AI	II	UU	EI	OU	YUU	YOU
あ	あい	いい	うう	えい	おう	ゆう	よう
か	かい	きい	くう	けい	こう	きゅう	きょう
さ	さい	しい	すう	せい	そう	しゅう	しょう
た	たい	ちい	つう	てい	とう	ちゅう	ちょう
な	ない	にい	ぬう	ねい	のう	にゅう	にょう
は	はい	ひい	ふう	へい	ほう	ひゅう	ひょう
ま	まい	みい	むう	めい	もう	みゅう	みょう
や	やい	ー	ゆう	ー	よう	ー	ー
ら	らい	りい	るう	れい	ろう	りゅう	りょう
わ	わい	ー	ー	ー	ー	ー	ー

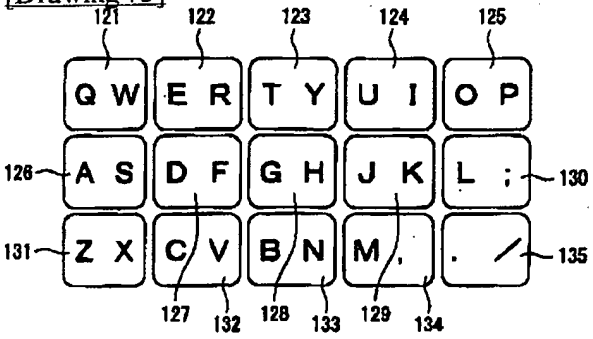
[Drawing 57]



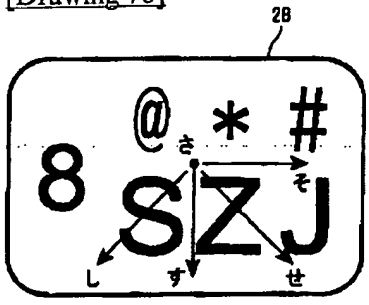
[Drawing 58]



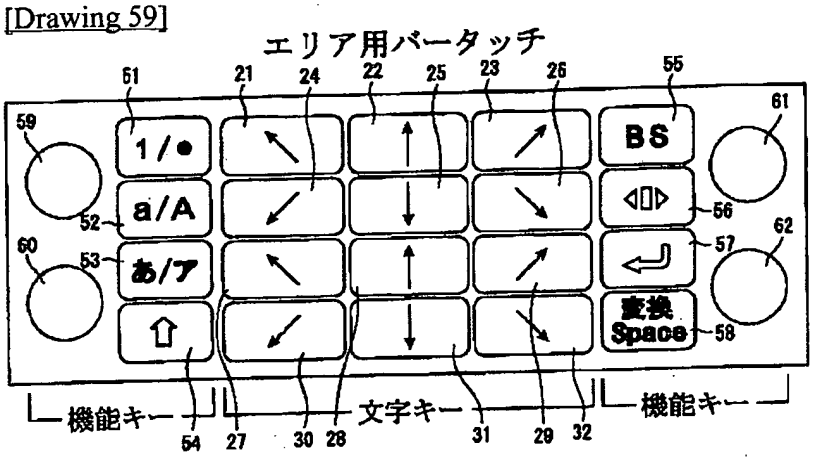
[Drawing 73]



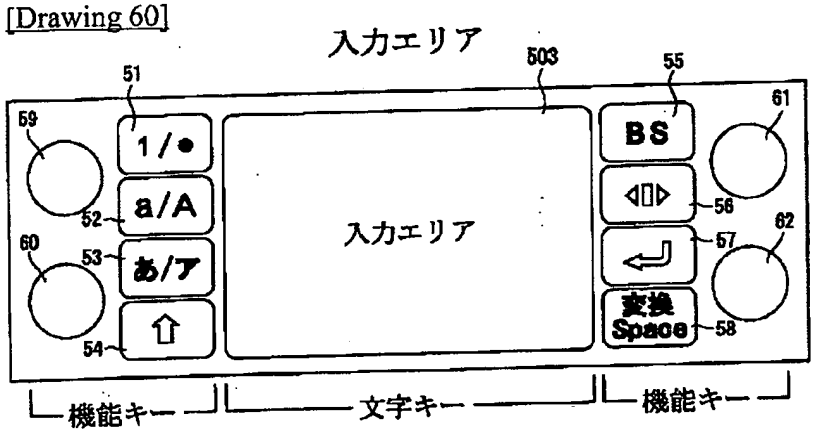
[Drawing 76]



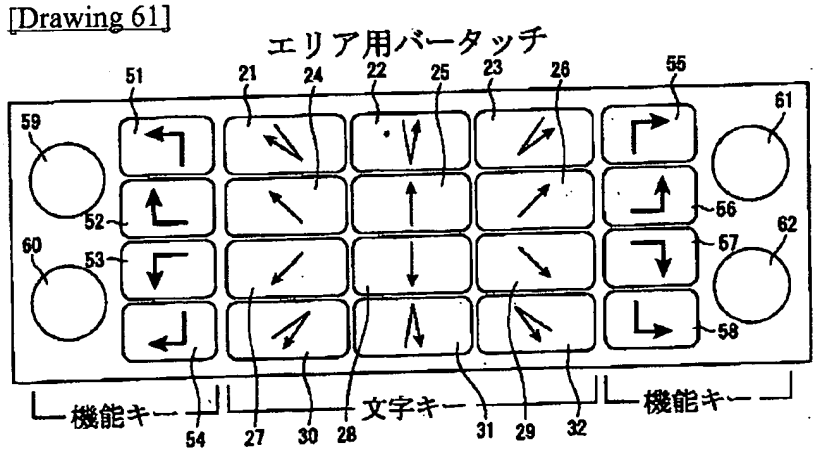
[Drawing 59]



[Drawing 60]

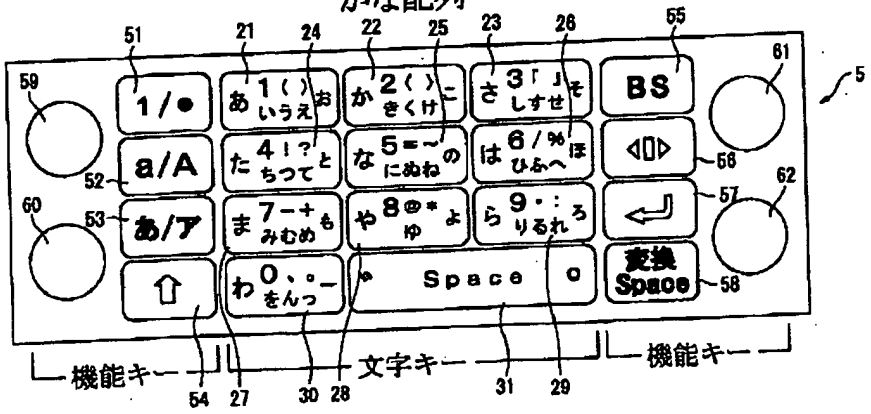


[Drawing 61]



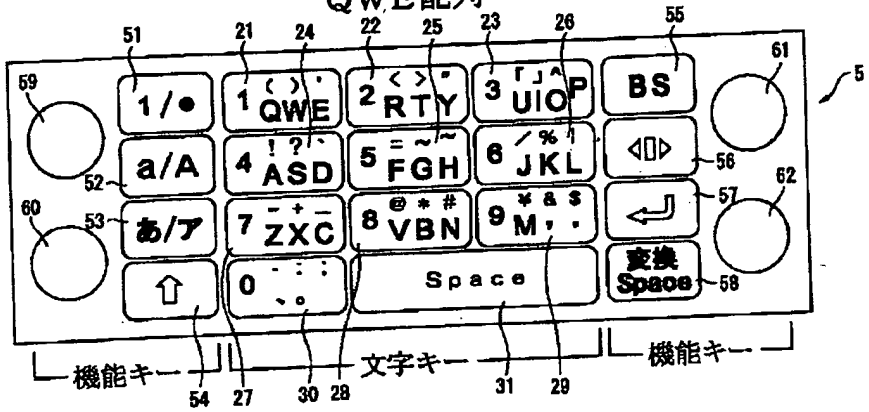
[Drawing 62]

かな配列



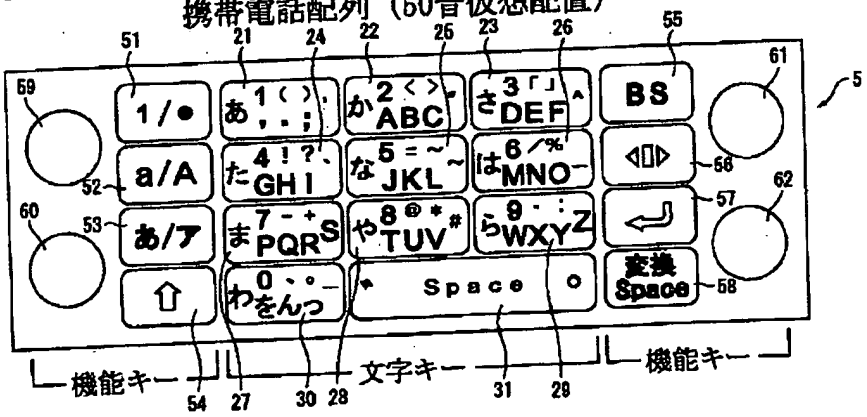
[Drawing 63]

QWE配列



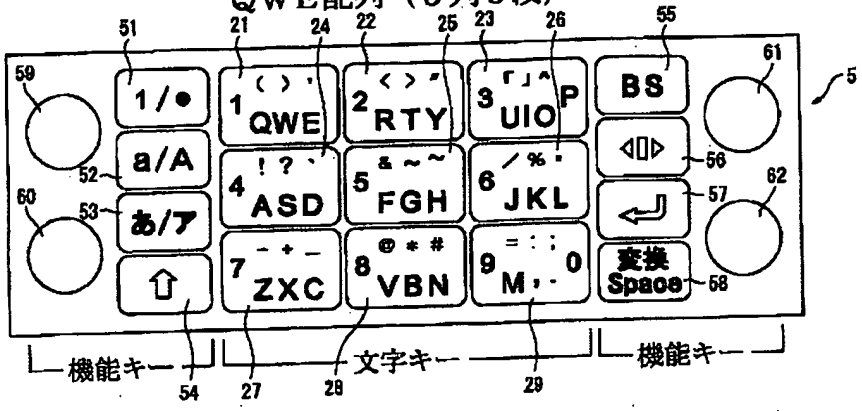
[Drawing 64]

携帯電話配列（50音仮想配置）



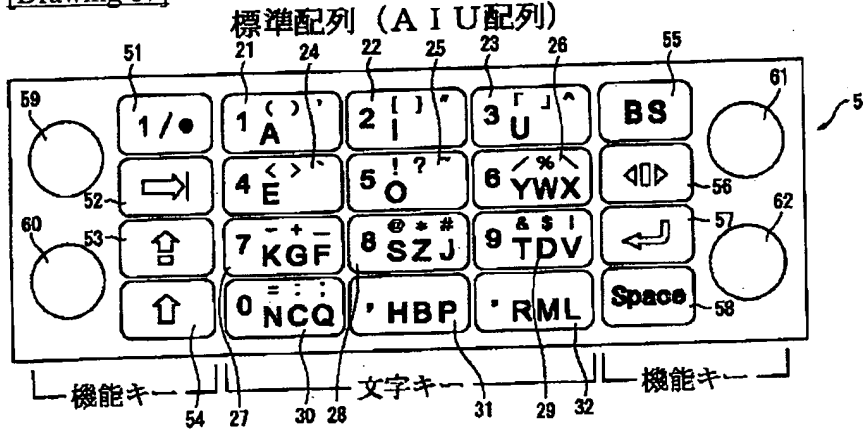
[Drawing 65]

QWE配列（3列3段）



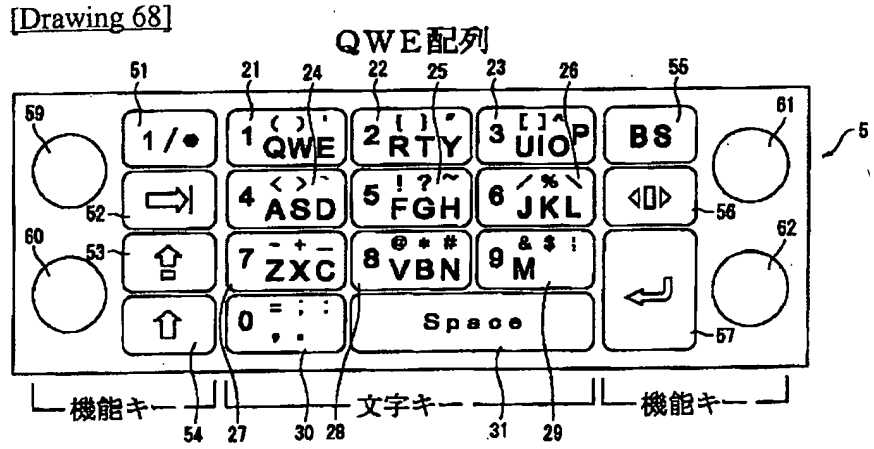
[Drawing 67]

標準配列（ＡＩＵ配列）



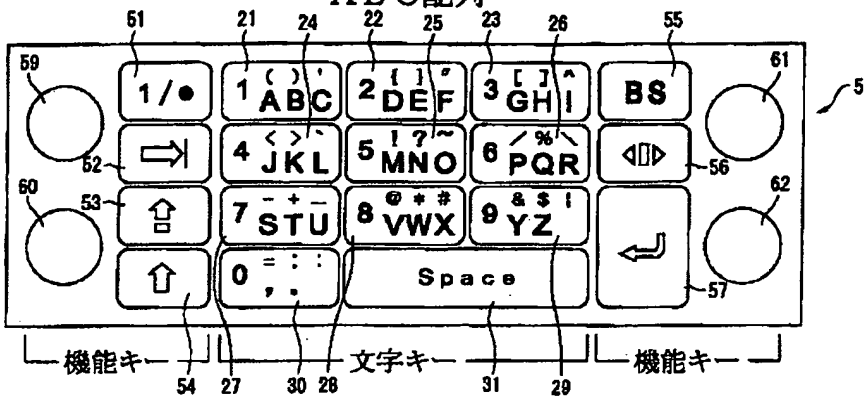
[Drawing 68]

QWE配列



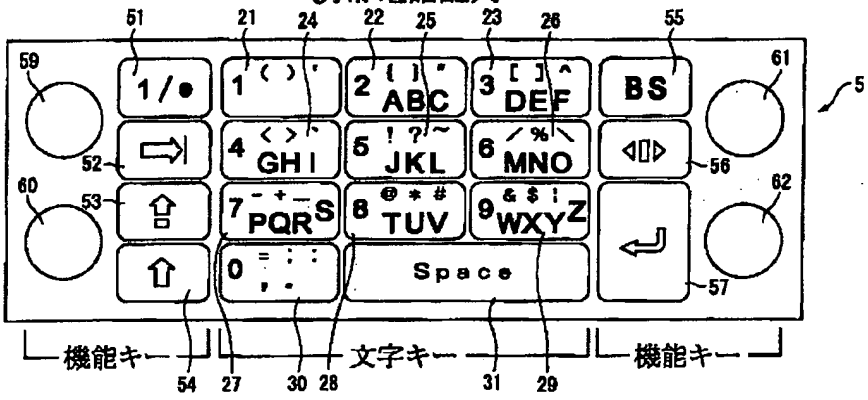
[Drawing 69]

ＡＢＣ配列



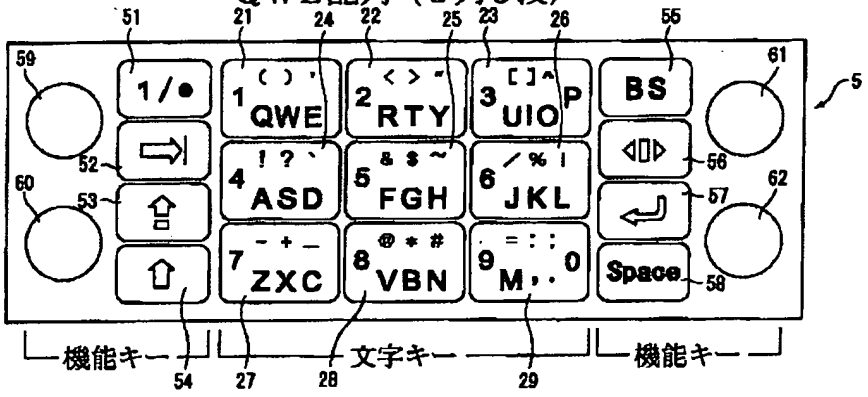
[Drawing 70]

携帯電話配列



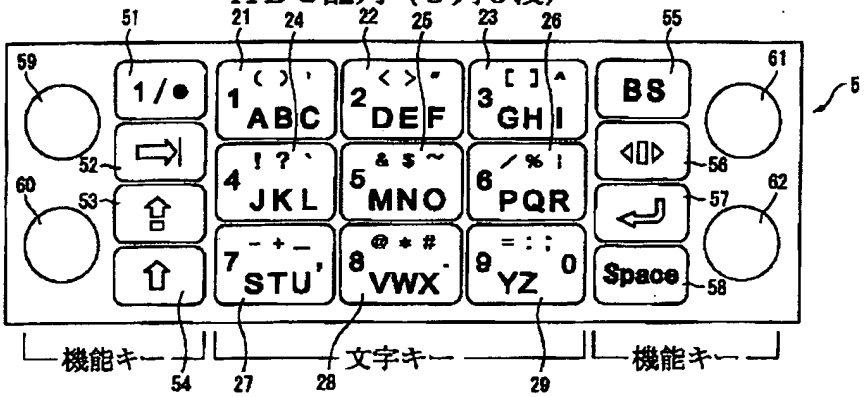
[Drawing 71]

QWE配列（３列３段）

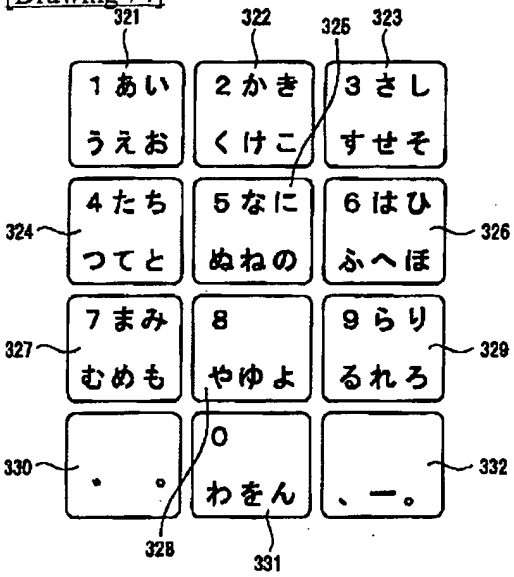


[Drawing 72]

ＡＢＣ配列（３列３段）



[Drawing 74]



[Drawing 75]

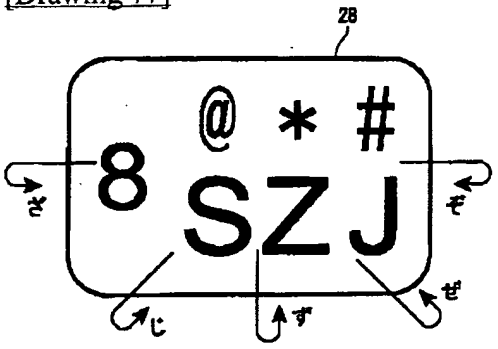
(A)

タッチ / キー	母音系				
	母音	小母音		拗音	
	・	↙	↓	↘	→
A一	あ	ぁ	ー	や	
I	い	ぃ			
U	う	ぅ		ゆ	ゆう
Eっ	え	ぇ	っ		
O	お	ぉ	ん	よ	よう

(B)

タッチ / キー	子音清音系					子音濁音系				
	あ段	い段	う段	え段	お段	あ段	い段	う段	え段	お段
	・	↙	↓	↘	→	↶	↙	↓	↘	→
YWX	や		ゆ		よ	わ				を
KGF	か	き	く	け	こ	が	ぎ	ぐ	げ	ご
SZJ	さ	し	す	せ	そ	ざ	じ	ず	ぜ	ぞ
TDV	た	ち	つ	て	と	だ	ぢ	づ	で	ど
NCQ	な	に	ぬ	ね	の	ぱ	ぴ	ぷ	ぺ	ぽ
HBP	は	ひ	ふ	へ	ほ	ぱ	ぴ	ぷ	ぺ	ぽ
RML	ら	り	る	れ	ろ	ま	み	む	め	も

[Drawing 77]



[Translation done.]

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